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Loughborough University

Sarah Dickinson
Athena SWAN Manager
Equality Challenge Unit
7th Floor, Queens House
55/56 Lincoln's Inn Fields
London WC24 3LJ

26th November 2014

Dear Sarah

I am delighted to support and endorse the joint Athena SWAN Silver submission from the Department of Mathematical Sciences (DMS) and the Mathematics Education Centre (MEC) at Loughborough University.

Although it has only been four months since I took up post as the Dean of Science at Loughborough University, I have been aware of the University's and School of Science's strong commitment to the Athena SWAN Charter and its six principles for some time. In fact, within the personal specification of the job description of my post, it was considered essential to be able *"to lead and role model the mainstreaming of the University's Equality and Diversity policy in all aspects of School activities".* I responded directly to this in my application documents, citing a number of initiatives I put in place as Head of School at my former institution. My views on Equality and Diversity were also examined in the interview by the Athena SWAN representative.

I am passionate about addressing under-representation and breaking traditional mind-sets to create opportunities for all. I am therefore extremely encouraged and impressed by the work undertaken by Professor Marta Mazzocco, Dr Camilla Gilmore (DMS and MEC Athena SWAN Champions, respectively) and the whole of the Self-Assessment Team. They have, for example, developed an excellent understanding of the gender issues faced in the DMS and MEC through collecting an extensive set of data from a range of sources over the past 18 months. They have also championed a number of initiatives with senior management in the School, including:

- Influencing Human Resources to mandate mixed gender selection panels across the University.
- Creating a mentoring scheme for all staff within the School of Science.
- Introducing a travel grant to cover childcare costs for staff attending conferences, training events, and other work-related commitments that are outside normal hours of work.
- Demonstrating a real cultural change and a dramatic improvement in awareness of Athena SWAN and gender equality issues

I am deeply committed to supporting the Athena SWAN agenda and would like all five Departments within the School of Science to achieve a Silver Athena SWAN accreditation (or equivalent) before the close of 2016 – a Silver award for DMS and MEC will pave the way for this to happen. I intend to personally mentor each of the departments in their efforts, and guarantee to commit an appropriate level of resource to ensure the success of their bid.

Yours faithfully

Professor Mark Biggs
*Dean of Science*

# Athena SWAN Silver department award application

**Name of university: Loughborough University**

**Department: Department of Mathematical Sciences (DMS) and Mathematics Education Centre (MEC)**

**Date of application: 28th November 2014**

**Date of university Bronze and/or Silver Athena SWAN award: November 2009, Renewed in September 2014.**

**Contact for application: Professor Marta Mazzocco (DMS) / Dr Camilla Gilmore (MEC)**

**Email: M.Mazzocco@lboro.ac.uk / C.Gilmore@lboro.ac.uk**

**Telephone: Professor Mazzocco (01509) 223187 / Dr Gilmore (01509) 228218**

**Departmental website address: http://www.lboro.ac.uk/departments/maths/ and http://www.lboro.ac.uk/departments/mec/**

Athena SWAN **Silver Department** awards recognise that in addition to university-wide policies the department is working to promote gender equality and to address challenges particular to the discipline.

Not all institutions use the term 'department' and there are many equivalent academic groupings with different names, sizes and compositions. The definition of a 'department' for SWAN purposes can be found on the Athena SWAN website. If in doubt, contact the Athena SWAN Officer well in advance to check eligibility.

It is essential that the contact person for the application is based in the department.

## Sections to be included

At the end of each section state the number of words used. Click here for additional guidance on completing the template.

**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.

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

**Describe the self-assessment process. This should include:**

**2a) 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.**

Our Self-Assessment Team (SAT) comprises members of both the Department of Mathematical Sciences (DMS) and the Mathematics Education Centre (MEC). It was put together through invitations for volunteers and by approaching individuals who would bring particular skills, experience and influence to maximise our impact (Action Plan AP:1.1). The team is well-balanced in terms of gender and grade, is culturally diverse to reflect our staff and student population (Table 1) and has awareness of gender issues (AP:1.2).

Following discussions with the School of Science (SoS) Operations Manager, membership of the SAT is credited on the workload model (AP:1.3). The School also provides an annual budget of £3000 for Athena SWAN activities as described in this document (AP:1.4).

*Please see page 51 for a list of abbreviations*.

| Name | Position | Affiliation | Additional Information |
|---|---|---|---|
| Prof. Marta Mazzocco (DMS and SoS Athena SWAN Champion) | Professor of Mathematics | DMS | Personal information removed |
| Dr Camilla Gilmore (MEC Athena SWAN Champion) | Senior Research Fellow | MEC | Personal information removed |
| Prof. Huaizhong Zhao | Professor of Mathematics; Head of Department | DMS | Personal information removed |
| Prof. Barbara Jaworski (from July 2013) | Professor of Mathematics Education; Head of Department | MEC | Personal information removed |
| Dr Carol Robinson (until July 2013) | Former Head of Department (until July 2013) | MEC | Personal information removed |
| Prof. Christopher Linton | Professor of Mathematics; Provost and Deputy Vice Chancellor | DMS | Personal information removed |

| | | | |
|---|---|---|---|
| Prof. Tony Croft | Professor of Mathematics Education | MEC | Personal information removed |
| Prof. Gavin Brown (from July 2014) | Professor of Mathematics | DMS | Personal information removed |
| Dr Wael Bahsoun | Senior Lecturer | DMS | Personal information removed |
| Dr David Sirl (until July 2014) | Lecturer | MEC | Personal information removed |
| Dr Arthur Prendergast-Smith (from November 2014) | Lecturer | DMS | Personal information removed |
| Dr Katryna Kalawsky | University Athena SWAN Project Officer | Vice Chancellors Office | Personal information removed |
| Mrs Meredith Coney | School Administrator | DMS | Personal information removed |
| Mr Pierpaolo Calligaris | PhD student | DMS | Personal information removed |
| Ms Sarah Clayton | PhD student | MEC | Personal information removed |
| Ms Jie Yuan | UG student | DMS | Personal information removed |

**Table 1**: Self-Assessment Team membership.

**2b) 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**

Our Athena SWAN journey began in Summer 2012 when the DMS and MEC took part in the London Mathematical Society's (LMS) '*Advancing Women in Mathematics: Good Practice in UK University Departments*' project. During this project, 30 UK Mathematics Departments gathered gender data and provided information about departmental structures and processes. From this, the LMS produced a set of Good Practice Guidelines and an individualised report for each participating department detailing how they performed with respect to these guidelines. Loughborough University (LU) received a mixed review by the LMS (Section 8bi) that provided impetus for change. The DMS and MEC decided to work together towards an Athena SWAN Silver award to build upon the positive aspects of our practice and improve areas that warranted attention. The SAT was formed in January 2013 and has met (at least) every 8 weeks (AP:1.5).

The SAT has worked hard to raise awareness of Athena SWAN issues and activities both within our department and across LU (AP:2.1). The DMS Athena SWAN Champion reports to the SoS Senior Management Team (SMT) meetings and the MEC Athena SWAN Champion attends institutional Athena SWAN SAT meetings. Since September 2013 Athena SWAN has become a standing item on the SoS SMT agenda and on both DMS and MEC staff meeting agendas (AP:2.1). We produced an Athena SWAN Statement (Section 8a) highlighting issues and opportunities, which has been circulated to all department staff, appeared in the SoS inaugural newsletter in September 2014, and has been shared with institutional SAT members (AP:2.1).

We held discussions with individuals within our departments who hold positions of responsibility for key processes, including members of the SMTs as well as: Dr Tony Kay (Admission Tutor), Professor Gavin Brown (Teaching Coordinator), Dr Natalia Janson and Dr Brian Winn (Open Day organisers), Dr Thomas Bartsch (Senior Programme Tutor and Staff-Student Committee Rep), and Dr Andy Archer (Web Manager and Applied Maths Seminar Organiser) (AP:2.2). To ensure we are well informed about University developments and opportunities, we consulted widely within LU with Professor Steve Rothberg (Institutional Athena SWAN Champion and Pro Vice-Chancellor, Enterprise), Professor Morag Bell (Pro Vice-Chancellor, Teaching), Rob Allan (Director of Human Resources), Ms Abida Akram (Equality and Diversity University Adviser) and other key Senior Administrators (AP:2.3). These interactions not only influenced our own Athena SWAN process but also led to important institutional-level changes. For example, our initiative to place the University's Athena SWAN Bronze logo on all MEC and DMS job adverts influenced Human Resources (HR) to include the logo on all recruitment webpages (section 4bi). Similarly, HR revised the institutional policy concerning the gender composition of appointment committees based on changes we initiated at a School level (Section 4bi). Further initiatives that evidence the MEC and DMS as beacons for positive change are detailed throughout this document and Action Plan.

Externally, we engaged with events promoting Women in STEMM (financial support was provided willingly from our departments). For example, Dr Camilla Gilmore attended the Athena SWAN workshop '*Going for a Departmental Silver Award*' in Manchester and Dr. Wael Bahsoun attended the LMS '*Good Practice Workshop*' in Edinburgh. These events allowed us to learn from the experience of other departments and to incorporate nationally recognised good practice into our initiatives. We also had informal interactions with Athena SWAN Champions/Assessors in other UK mathematics departments (Dr Susanne Pumpluen, Nottingham, and Professor Peter Clarkson, Kent) (AP:2.4).

Initially, SAT activities were based on the recommendations of the LMS '*Comparative Report on Good Practice*' for LU, which provided us with an independent consultant's view of our practices and structures (Section 8bi). As detailed in Section 8, we supplemented this with qualitative and quantitative data gathered by:

- conducting informal interviews with 16 staff and 20 UG and PG students (2012-2014);
- conducting two bespoke undergraduate student surveys (2013 and 2014);
- analysing data, specific to the DMS and MEC, from the Equality Challenge Unit's national Athena SWAN survey (2013) of academic and research staff;
- conducting a follow-up academic and research staff survey based on the Equality Challenge Unit's national survey (2014);
- analysing staff awareness of Athena SWAN via a tick-chart survey in June 2014.

These activities provided us with a richer insight into areas of strength and weakness regarding our departmental support for (female) students and staff, informed further actions and provided

evidence of the positive impact of our Athena SWAN activities. For example, in Autumn 2014, 91% (10 out of 11) of female academic and research staff reported that the Athena SWAN process has had positive impact on the work environment and practices of the department (Table 32: 1&2).

**2c) 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.**

Following submission of our application, the SAT will continue to meet regularly to oversee implementation of our Action Plan, share areas of good practice, and record achievements of female staff and students.

To maintain engagement with Athena SWAN, we will continue to report to departmental staff meetings, as well as SMTs of the MEC, DMS and SoS. We will continue to have a representative on the University's Athena SWAN SAT and will share best practice with others (AP:2.2, 2.3 and 2.4).

We have invited new members into our SAT to increase involvement amongst staff and students, whilst retaining core members to ensure continuity of actions and representation from all groups (AP:1.1).

**SECTION WORD COUNT = 1000**

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

**3a) Provide a pen-picture of the department to set the context for the application, outlining in particular any significant and relevant features.**

Our Unit is composed of two departments: the MEC and the DMS. Both share undergraduate (UG) students and, until recently, were combined as the School of Mathematics within the Faculty of Science. Following a restructure of the University in 2011, a new School of Science (SoS) was formed made up of five departments: DMS, MEC, Chemistry, Computer Sciences and Physics.

The **DMS** houses 35 academic staff, 6 research staff (RS) and 47 PhD students (June 2014). Principal research areas include Dynamical Systems, Geometry, Mathematical Physics, Global Analysis and Partial Differential Equations, Mathematical Modelling and Linear and Nonlinear Waves. The Research Assessment Exercise 2008 confirmed Loughborough's DMS as one of the country's Top 20 Departments and the department was rated 15$^{th}$ in the UK in the 2014 Times Higher league table.

The **MEC** houses 12 academic staff, 2 RS and 8 PhD students (June 2014) and has had a female Head of Department since 2009. The MEC was created in 2002 to recognize the importance of mathematics education for UGs studying non-mathematical degrees (e.g. Engineering, Psychology, Business). The MEC includes the Mathematics Learning Support Centre; an award-winning centre of excellence (Times Higher Education Award for Outstanding Student Support, 2011). The MEC has grown into one of the UKs leading centres of mathematics education research and support.

DMS and MEC offer three BSc degree programmes: Mathematics; Mathematics with Mathematics Education; and Mathematics with Statistics. Four joint honours BSc programmes are available with partner departments including the School of Business and Economics and the School of Sport, Exercise and Health Sciences (Athena SWAN Silver Award holder). DMS and MEC also offer a 4-year MMath programme.

There are two postgraduate taught (PGT) programmes: Industrial Mathematical Modelling and Mathematical Finance. As is typical of Mathematics Departments, these MSc programmes are not intended to lead students into an academic career but instead equip them with invaluable skills for business or industry.

At present the DMS and MEC are hosted in two separate buildings but from 2015 will share a new purpose-designed building including offices, laboratory space, a common room and administration area.

Each Department is led by a Head of Department (HoD) and Department SMT. HR matters (e.g. hiring and promotion) are the responsibility of The Dean and SoS SMT.

**3b) 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**: Data in this section are taken from HESA using the JACS code G100. Data from HESA are rounded to the nearest multiple of five, with obvious drawbacks for small numbers. For joint honours programmes, the Full Person's Equivalent is split so that students count as 0.5 FTE in mathematics. LU does not offer part-time undergraduate degrees.

**3b(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.**

Foundation or Access courses are only offered within the Science & Engineering Foundation Studies Programme. We do not run a separate Mathematics Foundation Programme.

**3b(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.**

Between 2008 and 2013, the proportion of female UGs in mathematics was similar to the national average, which is nevertheless below 50% (Table 2, Figure 1). To explore the low uptake of female UGs, we conducted a survey with current UG students (AP:3.1). In 2013, of the 95 respondents, females were significantly less impressed than males by their first visit to campus (58% females vs. 76% of males).

In response, we have improved the experience of potential female applicants at Open Days. Female staff and student volunteers are now well represented and our commitment to gender equality (with specific reference to Athena SWAN) is outlined in presentations and leaflets (AP:3.1). Consequently, in our survey female first year students who had attended Open Days in 2013/2014 reported being more impressed by their visit than female students in previous years (71% vs. 58%; Table 29:2d). Our web pages are now gender balanced/neutral and we have included links to the University Athena SWAN pages and LMS Good Practice websites (AP:3.1). We will continue to monitor the content of our websites with respect to gender equality and will refresh the prospectuses accordingly (AP:3.1). The UG survey will be run annually to gather student feedback (AP:3.1).

Attracting female students to mathematics is a national concern and requires action at a young age. In 2011, only 40% of Maths A-Level candidates and 31% of Further Mathematics A-Level candidates were female (LMS Good Practice report). Therefore we have engaged with secondary school students (AP:3.1). For example, we organised the "Loughborough Rollercoaster Mathematics" event (105 attendees, 50 female), which featured female mathematician speakers, and we co-organised a "Women in Mathematics" event at Nottingham University for 14 year-olds (134 attendees, 112 female). Furthermore, the MEC hosts the Further Mathematics Support Programme, which provides tuition for secondary school students in Further Mathematics, and organises inspiring events for Key Stage 3, 4 and 5 students.

| | 2008-09 | | | 2009-10 | | | 2010-11 | | | 2011-12 | | | 2012-13 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Student numbers F : M | | F(%) | Student numbers F : M | | F(%) | Student numbers F : M | | F(%) | Student numbers F : M | | F(%) | Student numbers F : M | | F(%) |
| Loughborough | 215 | 340 | 39% | 220 | 315 | 41% | 205 | 350 | 37% | 220 | 335 | 40% | 200 | 335 | 37% |
| National | 9045 | 13555 | 40% | 9730 | 14340 | 40% | 10095 | 15030 | 40% | 10615 | 15930 | 40% | 10715 | 16385 | 40% |

**Table 2**: Number and percentage of female and male **full-time undergraduate students** in mathematics nationally and at Loughborough.

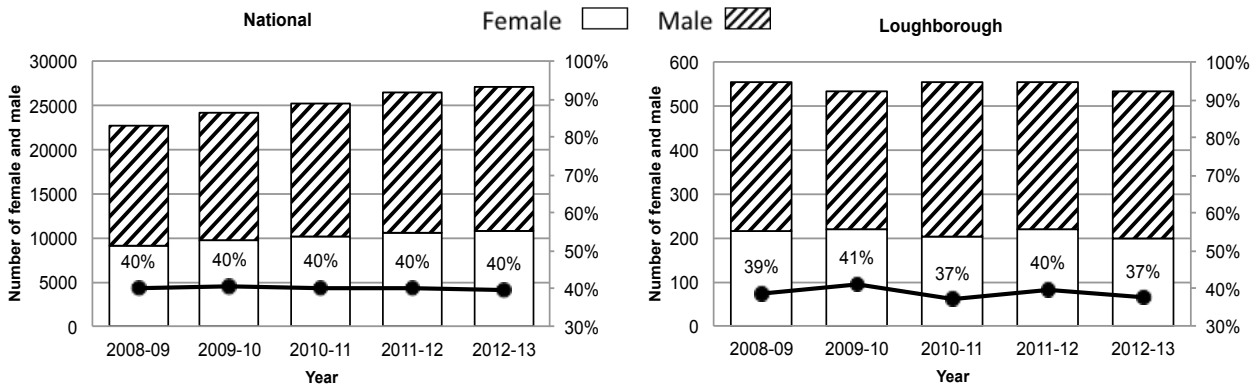



**Figure 1**: Number and percentage of female and male **full-time undergraduate students** in mathematics nationally and at Loughborough.

**3b(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.**

On average, 25% of our postgraduate taught (PGT) students are recruited through our China partnership. Since October 2010 this partnership has been managed by a female academic who makes regular trips to China (AP:4.1). Consequently, the proportion of female PGT students has increased in the past five years to 50% (Table 3, Figure 2). This is above both the national figure and the UG proportion.

| | 2008-09 | | 2009-10 | | 2010-11 | | 2011-12 | | 2012-13 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Student numbers F : M | F(%) | Student numbers F : M | F(%) | Student numbers F : M | F(%) | Student numbers F : M | F(%) | Student numbers F : M | F(%) |
| Loughborough | 5 : 10 | 33% | 10 : 20 | 33% | 5 : 15 | 25% | 15 : 15 | 50% | 15 : 15 | 50% |
| National | 290 : 500 | 37% | 365 : 615 | 37% | 395 : 845 | 32% | 495 : 865 | 36% | 420 : 805 | 34% |

**Table 3**: Number and percentage of female and male **full-time postgraduate taught students** in mathematics nationally and at Loughborough.

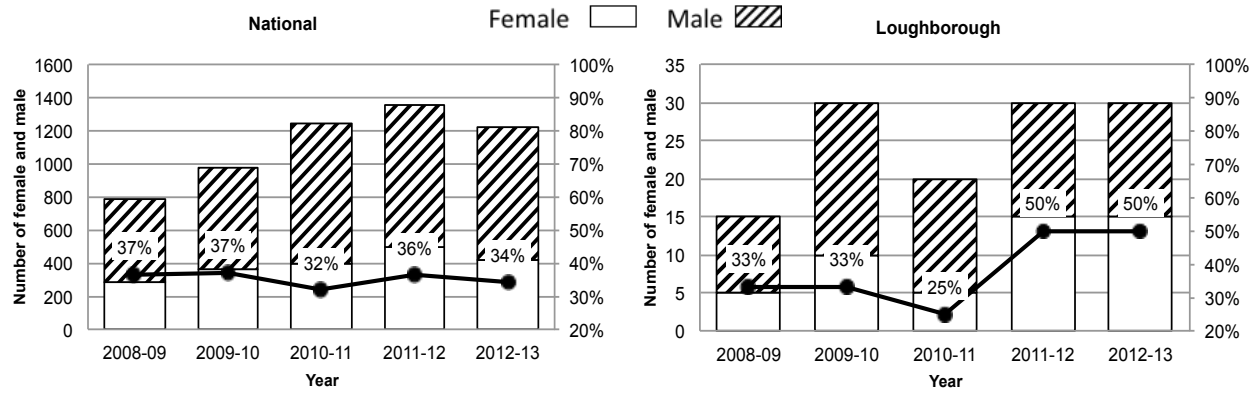



**Figure 2**: Number and percentage of female and male **full-time postgraduate taught students** in mathematics nationally and at Loughborough.

The number of students studying PGT courses part-time is very small and may be unrepresentative due to rounding issues (Table 4). However, female students are more likely to undertake part-time study than male students so we will continue to advertise part-time study and also explore the needs of this cohort (AP:4.2).

| | 2008-09 | | 2009-10 | | 2010-11 | | 2011-12 | | 2012-13 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Student numbers F : M | F(%) | Student numbers F : M | F(%) | Student numbers F : M | F(%) | Student numbers F : M | F(%) | Student numbers F : M | F(%) |
| Loughborough | 0 : 0 | N/A | 5 : 0 | 100% | 10 : 5 | 67% | 10 : 5 | 67% | 0 : 0 | N/A |
| National | 215 : 570 | 27% | 415 : 645 | 39% | 380 : 545 | 41% | 260 : 520 | 33% | 140 : 485 | 22% |

Table 4**:** Number and percentage of female and male **part-time postgraduate taught students** in mathematics nationally and at Loughborough**.**

Loughborough University launched a PGCE in Mathematics in September 2014 and we shall explore the needs of our PGCE students (AP:4.3).

**3b(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.**

Between 2008 and 2013, the proportion of female postgraduate research (PGR) students was in line with or slightly above the national average (Table 5, Figure 3). However, 4 female PGR students in the MEC have a psychology degree, which nationally has 79% female UGs (HESA, 2012-13). Therefore it is likely that our numbers are skewed in favour of females by this factor. Thus we believe that female representation at PGR level represents the first significant leak in our academic "pipeline" (Figure 14).

To investigate underlying causes of poor female representation at PGR level we conducted surveys with our current UG population (AP:5.1). Significantly more female than male UG students lacked confidence in their academic abilities and were less likely to apply for a PhD (33% vs. 15%; Table 29: 7a). UGs also commented that they lacked information about postgraduate options, and particularly wished to have increased interaction with PGR students.

We therefore undertook the following actions to encourage all suitable current UG students to consider PhD study:

1. We initiated a **seminar series** organised by PGR students for final-year UG students (AP:5.1). The seminars are designed to demonstrate to UG students what a PhD entails and inspire them to consider further research. A **networking social** with refreshments takes place after each seminar to increase interaction between UG and PGR students.
2. We organised a "**Women in Mathematics**" event for UG students (AP:5.1). Three former and current female LU PGR students gave presentations about their life and career. The session also included round table activities about role models, careers guidance and a **networking social**.

3. Teaching staff were encouraged by the Teaching Coordinator to be proactive in recruiting female PhD students and to talk about their research during lectures for inspiration (AP:5.1).
4. Representatives from the SAT took part in the staff-student Liaison meeting to advertise the Post-Graduate Open day (AP:5.1).

These activities have had positive impact on staff and student behaviour.

> *Quote 1: "During my third year as an undergraduate at LU my project supervisor encouraged me to apply for a PhD. I was surprised because I had not thought that I was clever enough. The department really supported me in developing a proposal and applying for funding and now I'm really enjoying my first year of postgraduate study at Loughborough." [PGR student, MEC]*

The PGR seminar series commenced in May 2014 with six well-attended seminars.

> *Quote 2: "Attending this seminar is really enhancing my understanding of mathematics and it gives me confidence in my competence and mathematical skills. I feel inspired by this experience and am now seriously considering applying for a PhD after the end of my studies." [UG student]*

Ten students attended the "Women in Mathematics" event and five who had not previously considered undertaking a PhD expressed interest. Finally, academic staff reported in informal interviews an increased awareness and need to encourage female students to consider postgraduate study (Quote 15 below). We will continue to work towards increasing female participation in PGR (AP:5.1).

Our student survey in 2014 revealed that 27% of female and 37% of male students were interested in postgraduate study of mathematics (Table 29: 6a). While there remains a gender imbalance, these proportions are encouragingly above the national figures for mathematics graduates who go on to further study of mathematics (HECSU report "What do graduates do?", 2013).

| | 2008-09 | | 2009-10 | | 2010-11 | | 2011-12 | | 2012-13 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Student numbers F : M | F(%) | Student numbers F : M | F(%) | Student numbers F : M | F(%) | Student numbers F : M | F(%) | Student numbers F : M | F(%) |
| Loughborough | 10 : 25 | 29% | 15 : 25 | 38% | 15 : 35 | 30% | 15 : 40 | 27% | 15 : 40 | 27% |
| National | 435 : 1110 | 28% | 455 : 1160 | 28% | 460 : 1215 | 27% | 490 : 1260 | 28% | 490 : 1350 | 27% |

**Table 5**: Number and percentage of female and male **full-time postgraduate research students** in mathematics nationally and at Loughborough.

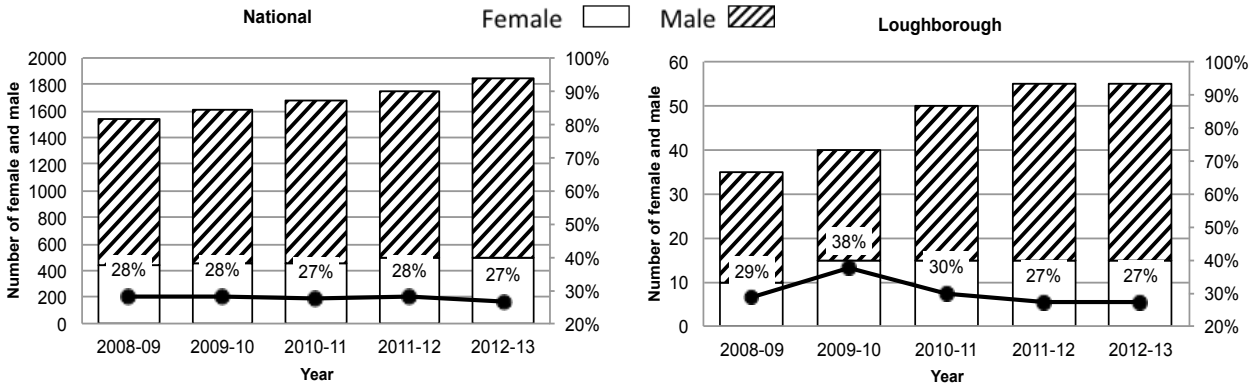



**Figure 3**: Number and percentage of female and male **full-time postgraduate research students** in mathematics nationally and at Loughborough.

Part-time PhDs are offered, however student numbers are small and rounded to zero by HESA. Local data reveal that in the past 3 years we have had 2 part-time PhD students: 1 female (MEC) and 1 male (DMS).

**3b(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.**

**UG:** The proportion of female applicants is in line with the proportion of offers and acceptances. The ratio of applications to acceptances is similar across genders and there is no gender difference in A-Level entrance grades (Tables 6&7, Figures 4-6). Thus the application process is not disadvantaging females. To increase female UGs we need to increase the number of female applications (AP:3.1).

| | 2010-11 | | 2011-12 | | 2012-13 | |
|---|---|---|---|---|---|---|
| | Student numbers F : M | F(%) | Student numbers F : M | F(%) | Student numbers F : M | F(%) |
| Applications | 496 : 778 | 39% | 516 : 706 | 42% | 261 : 474 | 36% |
| Offers | 459 : 712 | 39% | 481 : 643 | 43% | 248 : 445 | 36% |
| Acceptances | 73 : 126 | 37% | 70 : 111 | 39% | 57 : 87 | 40% |

**Table 6**: Number and percentage of female and male **undergraduate applications, offers and acceptances**.

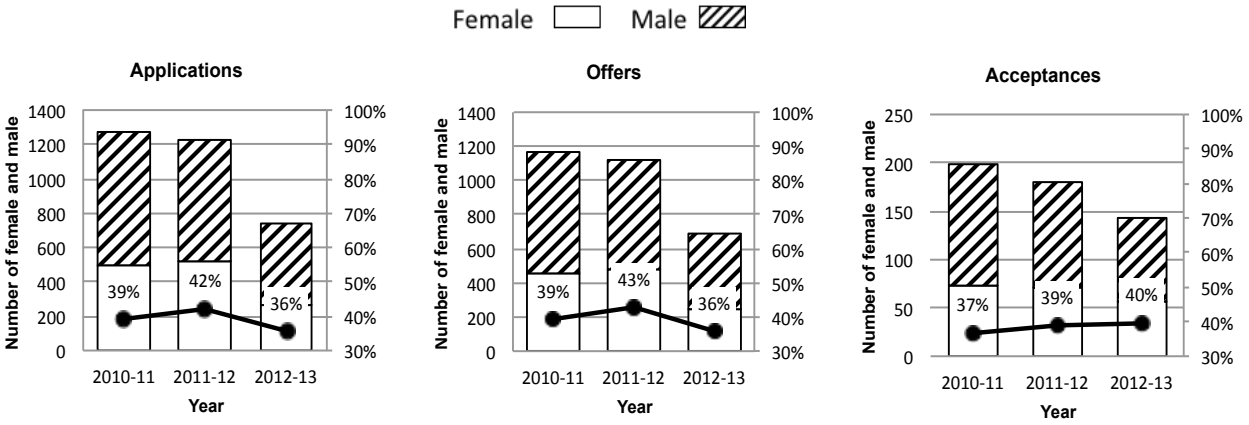



**Figure 4**: Number and percentage of female and male **undergraduate applications, offers and acceptances**.

| | 2010-11 Student numbers F : M | 2011-12 Student numbers F : M | 2012-13 Student numbers F : M |
|---|---|---|---|
| Applications: offers | 1.08 : 1.09 | 1.07 : 1.1 | 1.05 : 1.07 |
| Applications : acceptances | 6.79 : 6.17 | 7.37 : 6.36 | 4.58 : 5.45 |
| Offers : acceptances | 6.26 : 5.65 | 6.87 : 5.79 | 4.35 : 5.11 |

**Table 7**: Ratios of applications to offers, applications to acceptances and offers to acceptances for female and male **undergraduate students.**

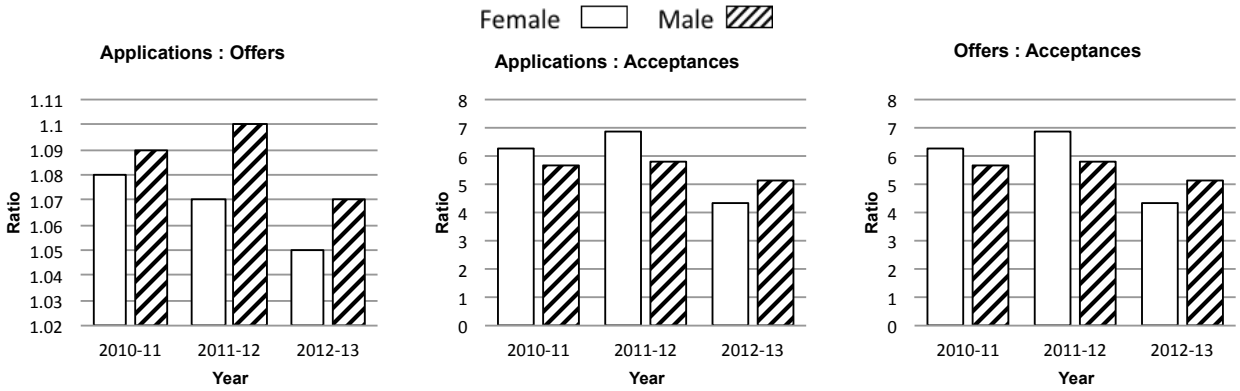



**Figure 5**: Ratios of applications to offers, applications to acceptances and offers to acceptances for female and male **undergraduate students**.

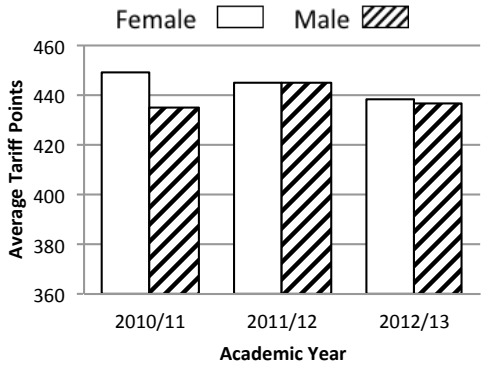



**Figure 6**: Average UCAS points for female and male **undergraduate intake** for Loughborough mathematics.

**PGT**: Given the small numbers of PGT students, we have little application data, which makes meaningful analysis difficult. The overall trend suggests that the application process does not disadvantage females (Tables 8&9, Figures 7&8).

| | 2010-11 | | 2011-12 | | 2012-13 | |
|---|---|---|---|---|---|---|
| | Student numbers F : M | F(%) | Student numbers F : M | F(%) | Student numbers F : M | F(%) |
| Applications | 81 : 143 | 36% | 108 : 148 | 42% | 89 : 125 | 42% |
| Offers | 33 : 59 | 36% | 49 : 47 | 51% | 47 : 60 | 44% |
| Acceptances | 9 : 13 | 41% | 15 : 11 | 58% | 11 : 14 | 44% |

**Table 8**: Number and percentage of female and male **postgraduate taught applications, offers and acceptances**.

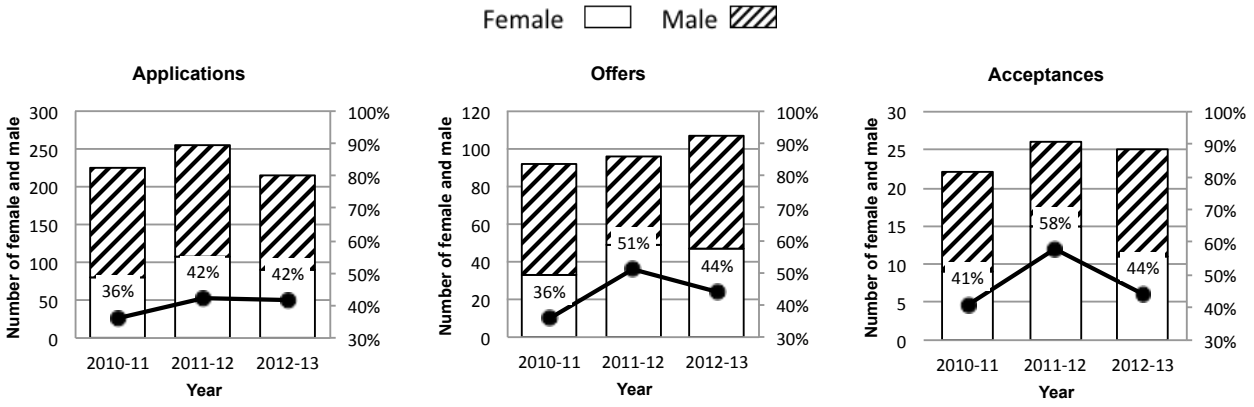



**Figure 7:** Number and percentage of female and male **postgraduate taught applications, offers and acceptances.**

| | 2010-11 Student numbers F : M | 2011-12 Student numbers F : M | 2012-13 Student numbers F : M |
|---|---|---|---|
| Applications: offers | 2.5 : 2.4 | 2.2 : 3.1 | 1.9 : 2.1 |
| Applications : acceptances | 9 : 11 | 7.2 : 13.5 | 8.1 : 8.9 |
| Offers : acceptances | 3.7 : 4.5 | 3.3 : 4.3 | 4.3 : 4.3 |

**Table 9**: Ratios of applications to offers, applications to acceptances and offers to acceptances for female and male **postgraduate taught students**.

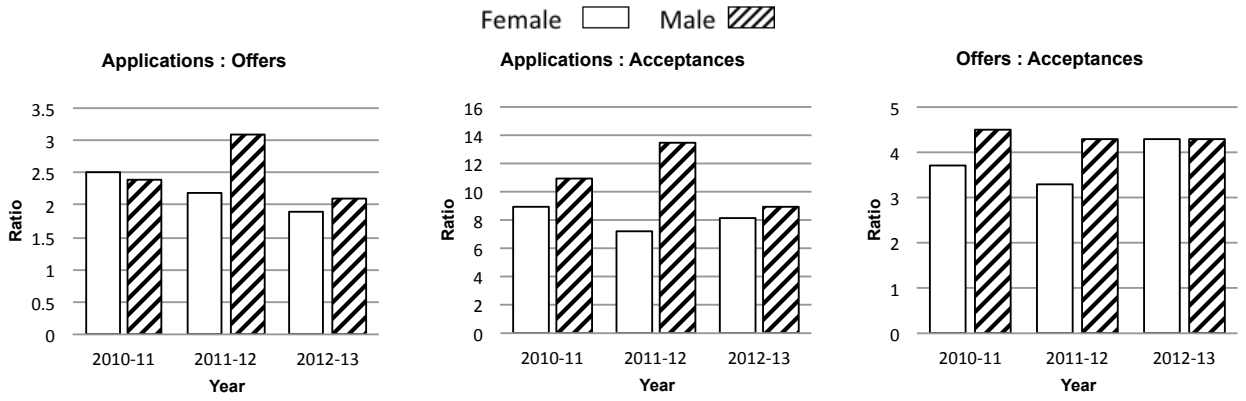



**Figure 8**: Ratios of applications to offers, applications to acceptances and offers to acceptances for female and male **postgraduate taught students**.

**PGR:** The first stage of the female "leaky pipeline" is apparent at PGR level (Tables 10&11, Figures 9&10). In addition to the actions encouraging current UGs to consider PhD study (AP:5.1) we have worked to increase the numbers of external female applicants (AP:5.2). For example, we successfully applied to the LMS to host the annual '*Prospects in Mathematics Conference*' (a prestigious conference for final year UGs who are considering PhD study) and will welcome 150 students from throughout the UK in December 2015 (AP:5.2). The Athena SWAN Champions have selected the speakers, ensuring 50% are female. We will include information about Athena SWAN in conference packs and have an Athena SWAN conference stand (AP:5.2).

| | 2010-11 Student numbers F : M | F(%) | 2011-12 Student numbers F : M | F(%) | 2012-13 Student numbers F : M | F(%) |
|---|---|---|---|---|---|---|
| Applications | 16 : 54 | 23% | 22 : 35 | 39% | 21 : 38 | 36% |
| Offers | 4 : 25 | 14% | 8 : 13 | 38% | 8 : 12 | 40% |
| Acceptances | 3 : 17 | 15% | 2 : 11 | 15% | 6 : 9 | 40% |

**Table 10**: Number and percentage of female and male **postgraduate research applications, offers and acceptances**.

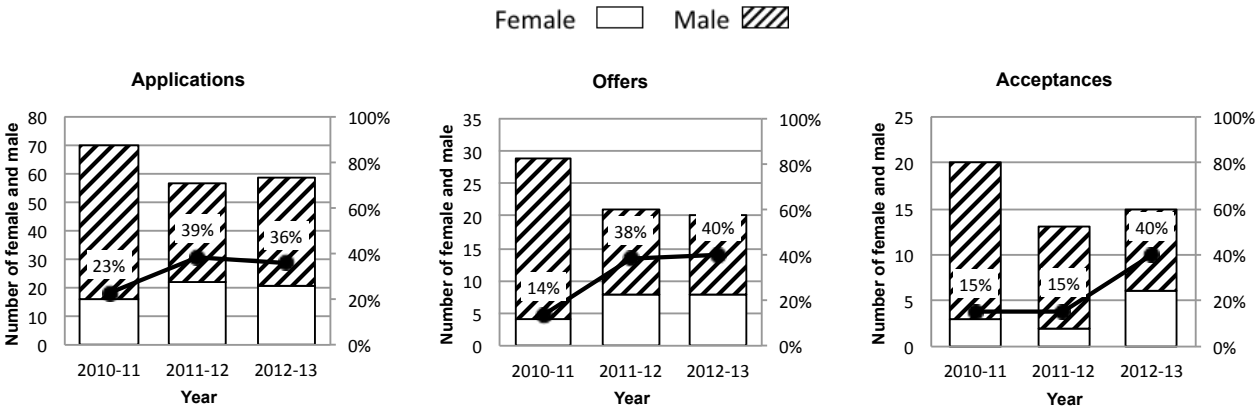



**Figure 9:** Number and percentage of female and male **postgraduate research applications, offers and acceptances.**

| | 2010-11 Student numbers F : M | 2011-12 Student numbers F : M | 2012-13 Student numbers F : M |
|---|---|---|---|
| Applications: offers | 4 : 2.2 | 2.8 : 2.7 | 2.6 : 3.2 |
| Applications : acceptances | 5.3 : 3.2 | 11 : 3.2 | 3.5 : 4.2 |
| Offers : acceptances | 1.3 : 1.5 | 4 : 1.2 | 1.3 : 1.3 |

**Table 11**: Ratios of applications to offers, applications to acceptances and offers to acceptances for female and male **postgraduate research students**.

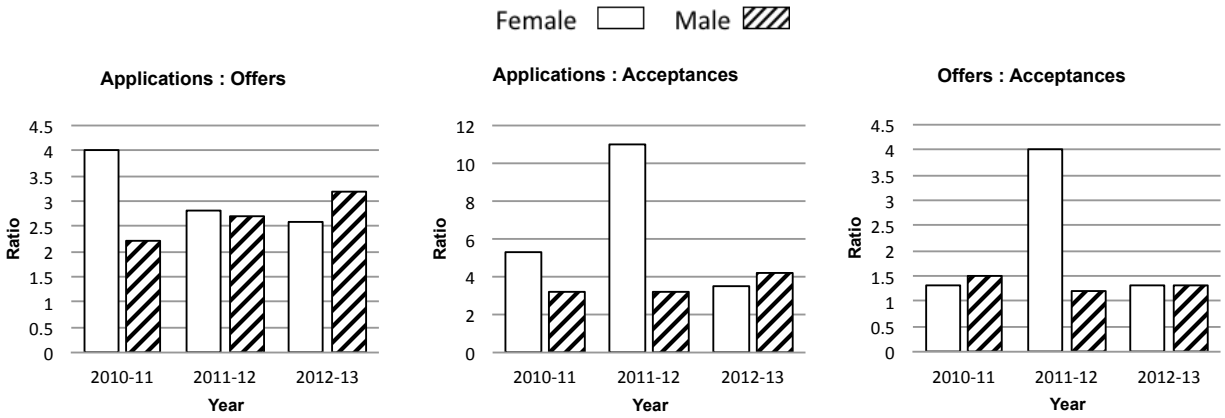



**Figure 10:** Ratios of applications to offers, applications to acceptances and offers to acceptances for female and male **postgraduate research students.**

**3b(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.**

Between 2010 and 2012, female students were roughly as successful as male students. However, both groups performed below the national average (Table 12, Figure 11). To correct the negative impact on students' options and funding for postgraduate study, the Teaching Coordinator and SoS Associate Dean for Teaching revised examination guidance for teaching staff to ensure it matched other institutions. Consequently, 2012-2013 saw a dramatic increase in the number of first class degrees, particularly for female students. We will continue to monitor this.

| | | Student numbers and percentage within gender | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2010-11 | | 2010-11 | | 2011-12 | | 2011-12 | | 2012-13 | | 2012-13 | |
| | | F | % | M | % | F | % | M | % | F | % | M | % |
| 1st | Loughborough | 10 | 17 | 15 | 17 | 10 | 17 | 25 | 25 | 30 | 43 | 40 | 36 |
| | National | 795 | 30 | 1030 | 30 | 915 | 33 | 1210 | 33 | 1080 | 35 | 1455 | 34 |
| 2:1 | Loughborough | 35 | 58 | 35 | 39 | 25 | 42 | 35 | 35 | 25 | 36 | 30 | 27 |
| | National | 1000 | 38 | 1225 | 35 | 1025 | 37 | 1275 | 34 | 1120 | 37 | 1495 | 35 |
| 2:2 | Loughborough | 10 | 17 | 25 | 28 | 20 | 33 | 25 | 25 | 10 | 14 | 30 | 27 |
| | National | 625 | 24 | 865 | 25 | 640 | 23 | 880 | 24 | 670 | 22 | 990 | 23 |
| 3rd/Pass | Loughborough | 5 | 8 | 15 | 17 | 5 | 8 | 15 | 15 | 5 | 7 | 10 | 9 |
| | National | 215 | 8 | 365 | 10 | 185 | 7 | 350 | 9 | 195 | 6 | 380 | 9 |

**Table 12:** Number and percentage of female and male **undergraduate students** achieving first class, upper second class, lower second class and third class honours / pass degrees in mathematics at Loughborough University and nationally**.**

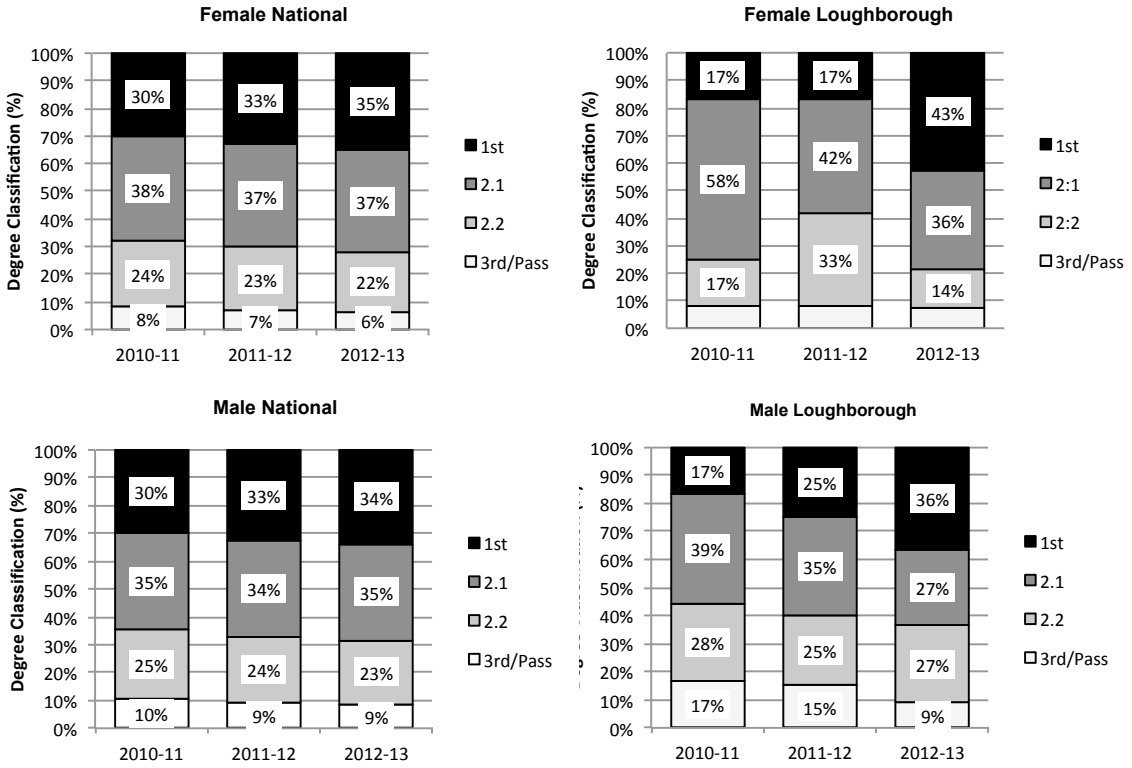



**Figure 11**: Number and percentage of female and male **undergraduate students** achieving first class, upper second class, lower second class and third class honours / pass degrees in mathematics at Loughborough University and nationally.

## 3c) Staff data

Below we present data for the DMS and the MEC separately and then combined. In the last 5 years, there has been no part-time academic staff and only one part-time researcher.

### 3c(i) 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 underrepresentation at particular grades/levels

### Academic Staff: DMS

The number of female Academic staff has increased by 2 since 2010, and the proportion of female Readers is above the national average (Table 13, Figures 12-14). However, between 2010–2013, there were no female professors. Actions taken to address this (Section 4) had positive impact, with the first female professor appointed in 2014.

| | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) |
| Lecturer | 1 : 13 | 7% | 3 : 12 | 20% | 3 : 12 | 20% | 3 : 10 | 23% |
| Senior Lecturer | 2 : 4 | 33% | 2 : 4 | 33% | 1 : 3 | 25% | 1 : 3 | 25% |
| Reader | 2 : 4 | 33% | 2 : 5 | 29% | 3 : 4 | 43% | 3 : 5 | 38% |
| Professor | 0 : 11 | 0% | 0 : 10 | 0% | 0 : 8 | 0% | 0 : 8 | 0% |
| Total | 5 : 32 | 14% | 7 : 31 | 18% | 7 : 27 | 21% | 7 : 26 | 21% |

**Table 13**: Female : male ratio of **academic** staff in the **Department of Mathematical Sciences**.

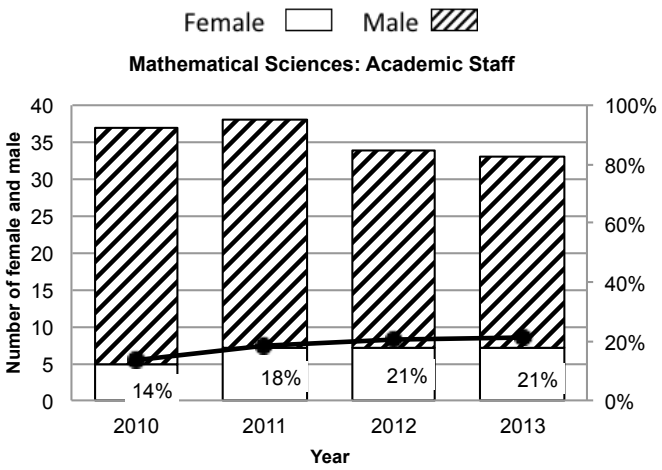



Figure 12: Number and percentage of female and male total **academic** staff in the **Department of Mathematical Sciences**.

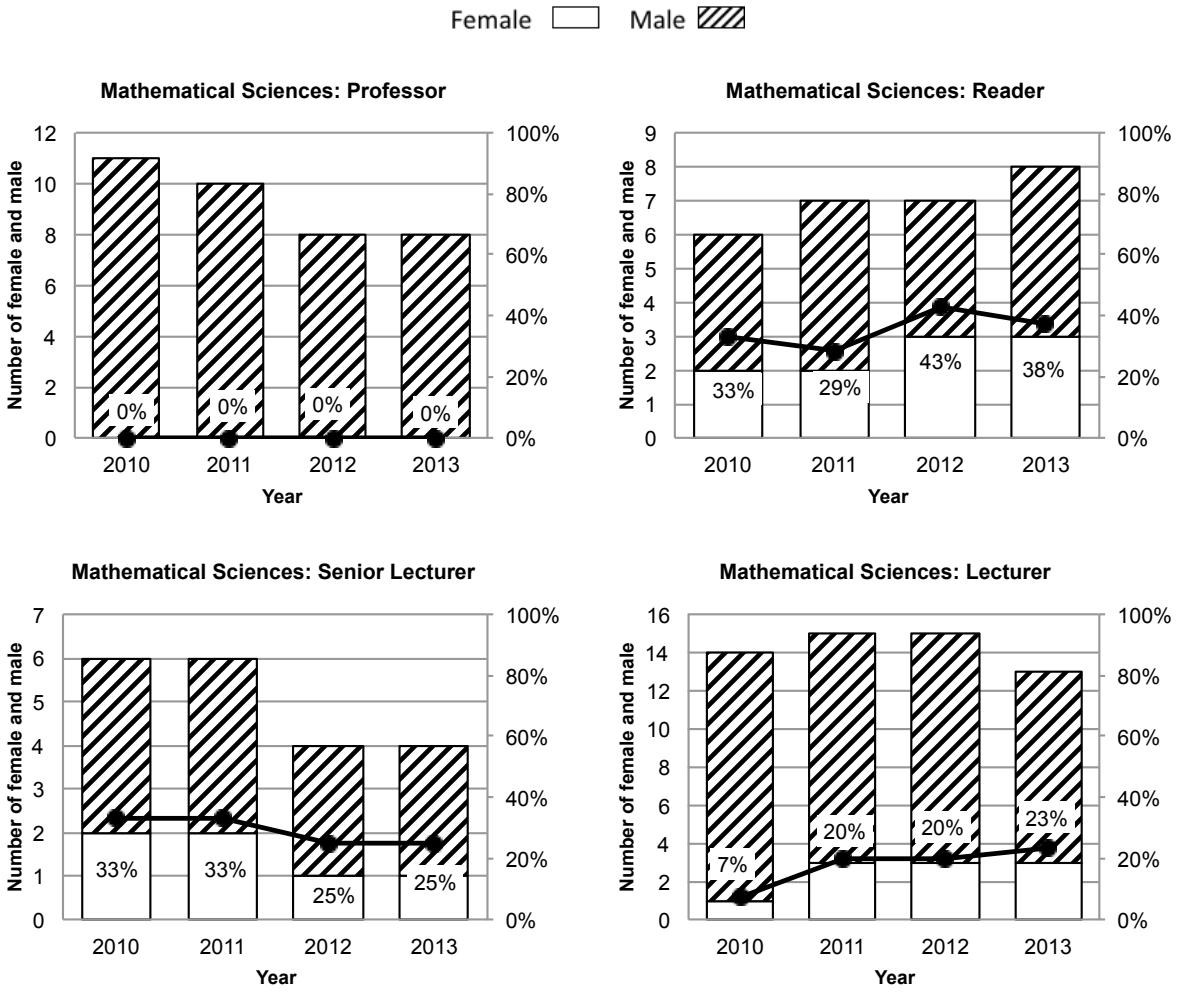



**Figure 13**: Number and percentage of female and male staff at **Professor, Reader, Senior Lecturer** and **Lecturer** grades in the **Department of Mathematical Sciences**.

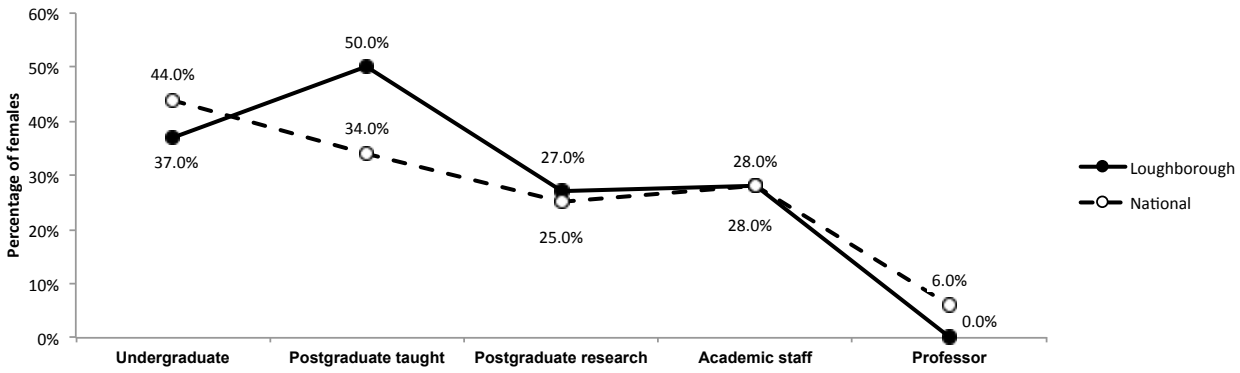



**Figure 14**: The "Leaky pipeline" in the **Department of Mathematical Science** at Loughborough and nationally in mathematics, 2012. National data from the London Mathematical Society (LMS) *Advancing women in mathematics* report. (Academic staff includes Lecturer, Senior Lecturer and Reader. These are not subdivided in the LMS report).

## Academic Staff: MEC

The data for the MEC is more encouraging (Table 14, Figure 15). Whilst there is an under-representation of females at Lecturer level, at all other levels the proportion of females is higher or equal to 50%. We will continue to monitor these data.

| | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) |
| Lecturer | 1 : 2 | 33% | 1 : 3 | 25% | 0 : 3 | 0% | 1 : 4 | 20% |
| Senior Lecturer | 1 : 0 | 100% | 1 : 0 | 100% | 2 : 1 | 67% | 2 : 2 | 50% |
| Professor | 1 : 1 | 50% | 1 : 1 | 50% | 1 : 1 | 50% | 1 : 1 | 50% |
| Total | 3 : 3 | 50% | 3 : 4 | 43% | 3 : 5 | 38% | 4 : 7 | 36% |

**Table 14**: Female : male ratio of **academic** staff in the **Mathematics Education Centre**.

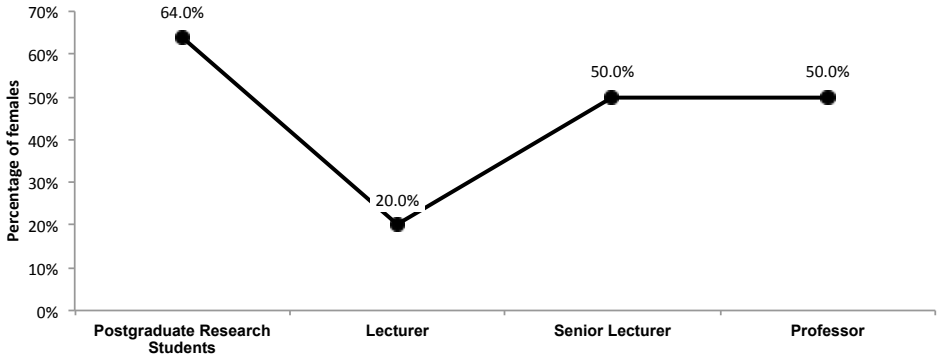



**Figure 15**: Percentage of female staff at different levels in the **Mathematics Education Centre** at Loughborough. Appropriate benchmark data do not exist due to the interdisciplinary nature of the department.

## Academic Staff: Combined Unit

| | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) |
| Lecturer | 2 : 15 | 12% | 4 : 15 | 21% | 3 : 15 | 17% | 4 : 14 | 22% |
| Senior Lecturer | 3 : 4 | 43% | 3 : 4 | 43% | 3 : 4 | 43% | 3 : 5 | 38% |
| Reader | 2 : 4 | 33% | 2 : 5 | 29% | 3 : 4 | 43% | 3 : 5 | 38% |
| Professor | 1 : 12 | 8% | 1 : 11 | 8% | 1 : 9 | 10% | 1 : 9 | 10% |
| Total | 8 : 35 | 19% | 10 : 35 | 22% | 10 : 32 | 24% | 11 : 33 | 25% |

**Table 15**: Female : male ratio of **academic** staff in the **Department of Mathematical Sciences and Mathematics Education Centre combined**.

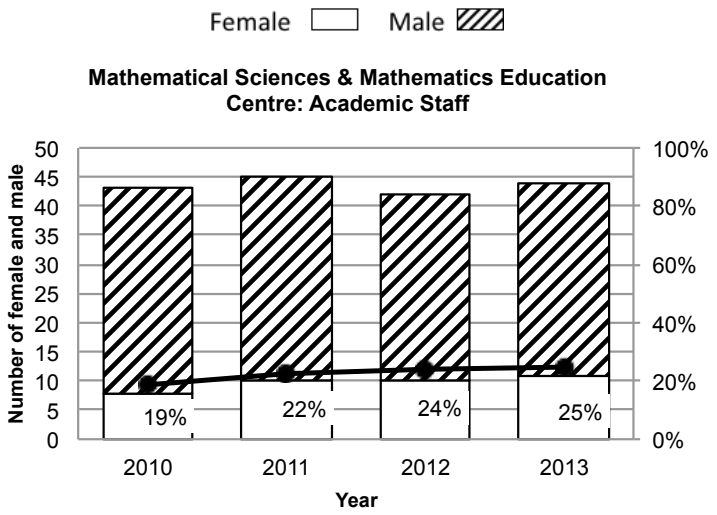



**Figure 16**: Number and percentage of female and male total **academic** staff in the **Department of Mathematical Sciences and Mathematics Education Centre combined**.

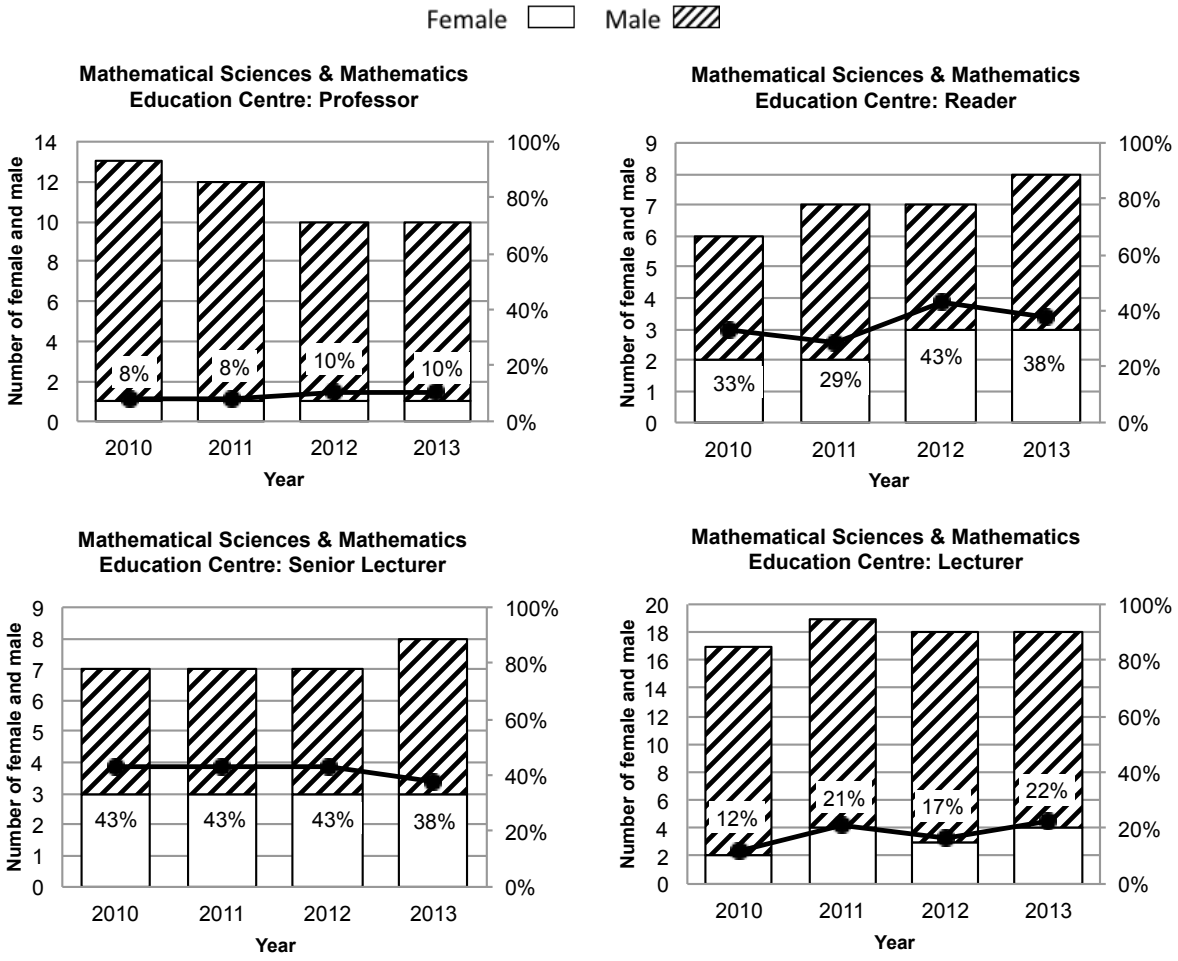



**Figure 17**: Number and percentage of female and male staff at **Professor, Reader, Senior Lecturer** and **Lecturer** grades in the **Department of Mathematical Sciences and Mathematics Education Centre combined**.

## Research Staff: DMS

The number of research staff (RS) is small - this reflects the nature of our research, which typically has fewer demands for RS compared with other STEMM subjects. RS are hired directly by those who have secured research funding within a very specific research area. The hiring panels are chaired by a senior staff member who has attended the University Recruitment and Selection training course, which covers Equality and Diversity training. However, our data show that the number of female RS has been extremely low (Table 16, Figure 15). To improve this, we will ensure that all Principal Investigators (PIs) who hire RS undergo Recruitment and Selection training (AP 6.1).

| | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) |
| Grade 5 | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A |
| Grade 6 | 2 : 4 | 33% | 1 : 6 | 14% | 1 : 5 | 17% | 0 : 4 | 0% |
| Grade 7 | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A |
| Grade 8 | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 1 | 0% |
| Total | 2 : 4 | 33% | 1 : 6 | 14% | 1 : 5 | 17% | 0 : 5 | 0% |

**Table 16**: Female : male ratio of **research** staff in the **Department of Mathematical Sciences**.

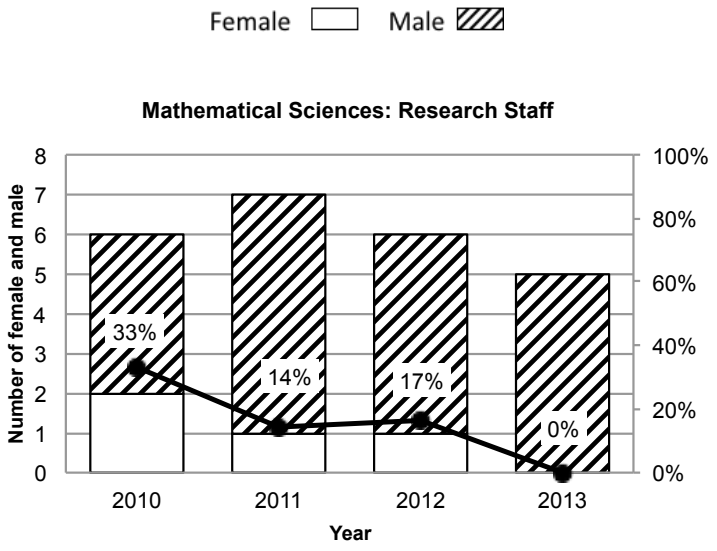



**Figure 18**: Number and percentage of female : male total **research** staff in the **Department of Mathematical Sciences**.

## Research Staff: MEC

The number of RS in the MEC is very small, however, females are well represented (Table 17). To increase the numbers of successful applications for research fellowships, in 2013/2014 PhD students were given additional support to apply for research funding. This had positive impact with one female PhD student awarded a prestigious ESRC Future Leaders Award to remain at Loughborough. This support will continue to be offered in the future (AP:6.1).

| | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) |
| Grade 5 | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A | 1 : 0 | 100% |
| Grade 6 | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A |
| Grade 7 | 0 : 0 | N/A | 0 : 1 | 0% | 1 : 1 | 50% | 1 : 0 | 100% |
| Grade 8 | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A |
| Total | 0 : 0 | N/A | 0 : 1 | 0% | 1 : 1 | 50% | 2 : 0 | 100% |

**Table 17**: Female : male ratio of **research** staff in the **Mathematics Education Centre**.

## Research Staff: Combined Unit

Support is provided to retain existing RS (AP:6.2) and enhance their career development. All RS are automatically notified about new research posts at LU and line managers contact former RS if a suitable post becomes available. Furthermore, conscious effort is made to acknowledge contributions made by research staff (e.g. in University Press Releases) (AP:6.3) Development needs (including mentoring) are provided by several Professional Services within LU. However, RS in our departments tend not to take up development opportunities. Therefore we now advertise these to current RS and encourage them to take advantage of these. (AP:8.2).

At present, Performance and Development Review (PDR) meetings for RS are at the PIs discretion. We will ensure that RS have a PDR with their line manager (AP:8.4), and an additional meeting with Senior Academics responsible for research strategy to discuss career development and the possibility of submitting grants as Co-I (AP:6.2).

The LMS Good Practice guide recommends providing RS with the opportunity to gain teaching experience to support their career development. The SoS SMT has given outline approval to offer teaching opportunities to suitable RS who will then be able to gain Higher Education Academy accreditation through training provided by the Centre of Academic Practice (AP:6.1).

| | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) |
| Grade 5 | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A | 1 : 0 | 100% |
| Grade 6 | 2 : 4 | 33% | 1 : 6 | 0% | 1 : 5 | 0% | 0 : 4 | 0% |
| Grade 7 | 0 : 0 | N/A | 0 : 1 | 0% | 1 : 1 | 50% | 1 : 0 | 100% |
| Grade 8 | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 1 | 0% |
| Total | 2 : 4 | 33% | 1 : 7 | 13% | 2 : 6 | 25% | 2 : 5 | 29% |

**Table 18**: Female : male ratio of **research** staff in the **Department of Mathematical Sciences and Mathematics Education Centre combined**.

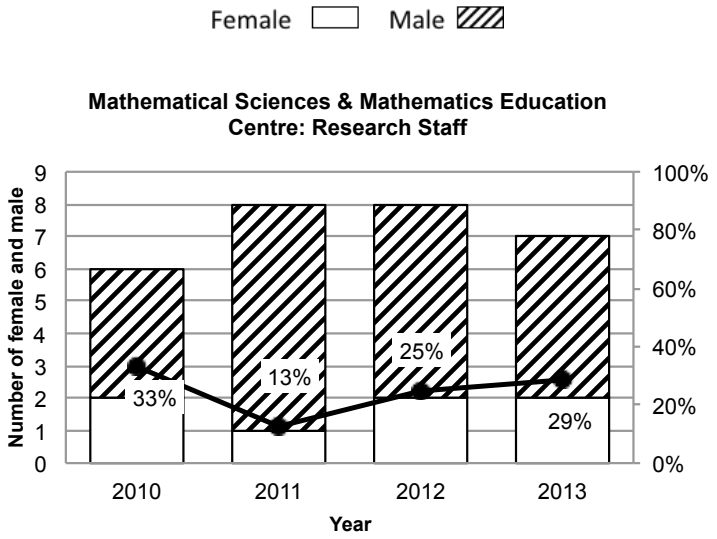



**Figure 19**: Number and percentage of female : male total **research** staff in the **Department of Mathematical Sciences and Mathematics Education Centre combined**.

**(ii) 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.**

Between 2010 and 2013, 11 academic and 8 RS left the DMS and MEC (Table 18). For academic staff the turnover was 9% (female) and 91% (male). For RS, the turnover was 12.5% (female) and 87.5% (male). RS left because externally-funded research projects were completed. Academic staff left for reasons including: joining a spouse, joining a bespoke research group, returning to their country of origin or retirement.

| | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) |
| Research (all) | 0 : 0 | N/A | 0 : 2 | 0% | 1 : 2 | 33% | 0 : 3 | 0% |
| Lecturer | 0 : 1 | 0% | 0 : 1 | 0% | 0 : 1 | 0% | 1 : 1 | 50% |
| Senior Lecturer | 0 : 1 | 0% | 0 : 1 | 0% | 0 : 0 | N/A | 0 : 0 | N/A |
| Reader | 0 : 0 | N/A | 0 : 1 | 0% | 0 : 0 | N/A | 0 : 0 | N/A |
| Professor | 0 : 1 | 0% | 0 : 2 | 0% | 0 : 0 | N/A | 0 : 0 | N/A |
| Total | 0 : 3 | 0% | 0 : 7 | 0% | 1 : 3 | 25% | 1 : 4 | 20% |

**Table 18**: Numbers of female and male leavers from **Department of Mathematical Sciences** and **Mathematics Education Centre** combined.

**SECTION WORD COUNT = 2387**

**Supporting and advancing women's careers: maximum 5000 words**

**4. Key career transition points**

**4a 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.**

**4a(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.**

Female applications for academic and research roles in the DMS are low (Table 19), and while the proportion of female appointments was above the proportion of applications in 2010-2011, in 2013, it fell below. Actions to address this are presented in section 4bi.

| | | 2010* | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|---|
| | | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) |
| Academic roles | | | | | | | | | |
| | Applications | 7 : 20 | 26% | 36 : 219 | 14% | 0 : 0 | N/A | 17 : 99 | 15% |
| | Appointments | 2 : 2 | 50% | 3 : 6 | 33% | 0 : 0 | N/A | 0 : 1 | 0% |
| Research roles | | | | | | | | | |
| | Applications | 0 : 0 | N/A | 0 : 0 | N/A | 1 : 4 | 20% | 3 : 9 | 25% |
| | Appointments | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 1 | 0% | 0 : 2 | 0% |

*Note that this includes data for the Mathematics Education Centre

**Table 19**: Applications and appointments for **academic and research** roles in the **Department of Mathematical Sciences**. Prior to 2011 HR processes did not separate data for the DMS and MEC. All academic posts are Lecturer level.

| | | 2011* | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|
| | | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) |
| Academic roles | | | | | | | |
| | Applications | 0 : 0 | N/A | 0 : 0 | N/A | 7 : 8 | 47% |
| | Appointments | 0 : 0 | N/A | 0 : 0 | N/A | 1 : 1 | 50% |
| Research roles | | | | | | | |
| | Applications | 0 : 0 | N/A | 0 : 0 | N/A | 15 : 4 | 79% |
| | Appointments | 0 : 0 | N/A | 0 : 0 | N/A | 1 : 1 | 50% |

* Note that prior to 2011 data for the Mathematics Education Centre is combined with data for the Department of Mathematical Sciences.

**Table 20**: Applications and appointments for **academic and research** roles in the **Mathematics Education Centre**. Prior to 2011 HR processes did not separate data for the DMS and MEC. All academic posts are Lecturer level.

**4a(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.**

The success rates for female applicants is 100%, however the number of female staff putting themselves forward is low (Tables 21&22). Therefore we have taken actions to increase the number of applications for promotions (Section 5a(i)).

| | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| | Staff numbers F : M | Staff numbers F : M | Staff numbers F : M | Staff numbers F : M |
| Applied | 0 : 4 | 1 : 1 | 0 : 2 | 1 : 3 |
| Approved | 0 : 2 | 1 : 0 | 0 : 1 | 1 : 3 |
| Success rate (%) | N/A : 50% | 100% : 0% | N/A : 50% | 100% : 100% |

**Table 21**: Applications for promotion to **Senior Lecturer** for **Department of Mathematical Sciences** and **Mathematics Education Centre combined**.

| | 2009 - 2010 | 2010 - 2011 | 2011 - 2012 | 2012 - 2013 |
|---|---|---|---|---|
| | Staff numbers F : M | Staff numbers F : M | Staff numbers F : M | Staff numbers F : M |
| Promotion to Reader | | | | |
| Applied | 0 : 1 | 0 : 0 | 1 : 0 | 0 : 1 |
| Approved | 0 : 1 | 0 : 0 | 1 : 0 | 0 : 1 |
| Success rate (%) | N/A : 100 | N/A : N/A | 100 : N/A | N/A : 100 |
| Accelerated increment | | | | |
| Applied | 0 : 1 | 0 : 2 | 1 : 0 | 0 : 1 |
| Approved | 0 : 1 | 0 : 2 | 1 : 0 | 0 : 1 |
| Success rate (%) | N/A : 100 | N/A : 100 | 100 : N/A | N/A : 100 |
| Lump sum | | | | |
| Applied | 0 : 0 | 0 : 0 | 1 : 0 | 0 : 0 |
| Approved | 0 : 0 | 0 : 0 | 1 : 0 | 0 : 0 |
| Success rate (%) | N/A : N/A | N/A : N/A | 100 : N/A | N/A : N/A |

**Table 22**: Applications and approvals for **Promotion to Reader, Accelerated increments and Lump sum award** for **Department of Mathematical Sciences** and **Mathematics Education Centre combined**.

**4b) 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.**

**4b(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.**

All job descriptions for new posts are written in clear, straightforward and gender-neutral language. The University's Athena SWAN Bronze logo features on all DMS and MEC job adverts (an initiative followed by HR on all job adverts) and now appears on the University's homepage (AP:7.1).

When there is an academic post available in the DMS or MEC, the HoD / Dean selects an appointment panel to be in charge of shortlisting and interviewing. Membership of these panels are made known to staff. All staff are encouraged to attend presentations by potential candidates and actively encouraged to comment to the appointment panel. University policy requires that the chair of recruitment panels must have received Recruitment and Selection training, which includes Equal Opportunities training and other members of recruitment panels are strongly encouraged to. Further training on "Respecting Diversity" is mandatory for all staff in order to pass their probation.

There were few female applications during 2010–2013 (Tables 19&20). To address this, since the 2013/2014 academic year, all new jobs are advertised on both the LMS's and European Mathematical Society's 'Women in Mathematics' mailing lists as well as on the WISE website (AP:7.1). Following advice from the LMS, who noted that women who are not directly approached and encouraged to apply for jobs are less likely to do so than men, we have taken positive action to increase the numbers of female applicants by encouraging staff to specifically invite candidates to apply (AP:7.1). We are also targeting female speakers for departmental research seminars and will continue to monitor the gender balance of invited speakers (AP 7.1).

We have also ensured that our departmental webpages now include neutral or gender-balanced images and details of our Athena SWAN and LMS Good Practice activities with relevant links (AP:7.1).

We initiated an important change concerning the recruitment of new staff across the University. At our suggestion the SoS approved a policy that there must be always a male and a female member on hiring committees (AP:7.1). The University has followed our example and the Code of Practice of the Composition of Appointment Committees now states that "Both genders must be represented on appointment committees". Since these changes have been put in place we have had limited opportunity to assess the impact. Only two academic jobs were recruited to during the 2013/2014 academic year. Two males were eventually hired although 6 females were encouraged to apply and one was shortlisted. We will continue to monitor future applications.

**4b(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.**

Our staff data indicated few females at senior levels. To address this we have ensured all staff are aware of opportunities for training and networking to support career development, and we have initiated new opportunities as well as monitoring take-up (AP:8.2). As a consequence, staff survey data on career satisfaction show a substantial improvement for females: in 2014 73% females were satisfied with success achieved in their career compared with only 50% in 2013 (Table 30: 5a)

**Sabbatical leave** is important for staff to gain dedicated time for research activities, critical for future promotion prospects. Since 2012 the Dean of Science and Athena SWAN champions have been proactive in encouraging female staff to apply for sabbatical leave, with positive impact (Table 23, Figure 20). This was reflected in the staff survey, which revealed that fewer females felt in need of a sabbatical in 2014 (46%) compared with 2013 (100%; Table 30:4h).

> *Quote 3: "After returning from a year of adoption leave, I was struggling to find time for research. With encouragement from the Dean and Prof. Mazzocco, I applied for and was granted a sabbatical for one semester. This has been very productive. I have been able to finish four papers, begin a new collaboration and was able to sit on two PhD panels, which is important for my career development." [Dr XXX, DMS]*

Staff may also request that all their teaching falls into one semester, thereby freeing up the other semester to concentrate on research activities – all such requests have been accepted.

| 2008-2009 | | | 2009-2010 | | | 2010-2011 | | | 2011-2012 | | | 2012-2013 | | | 2013-2014 | | | 2014-2015 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F | M | F(%) | F | M | F(%) | F | M | F(%) | F | M | F(%) | F | M | F(%) | F | M | F(%) | F | M | F(%) |
| 0 | 6 | 0% | 0 | 6 | 0% | 0 | 0 | N/A | 3 | 0 | 100% | 15 | 0 | 100% | 12 | 14 | 46% | 6 | 6 | 50% |

**Table 23**: Months of **sabbatical leave** taken by female and male staff in the DMS and MEC combined

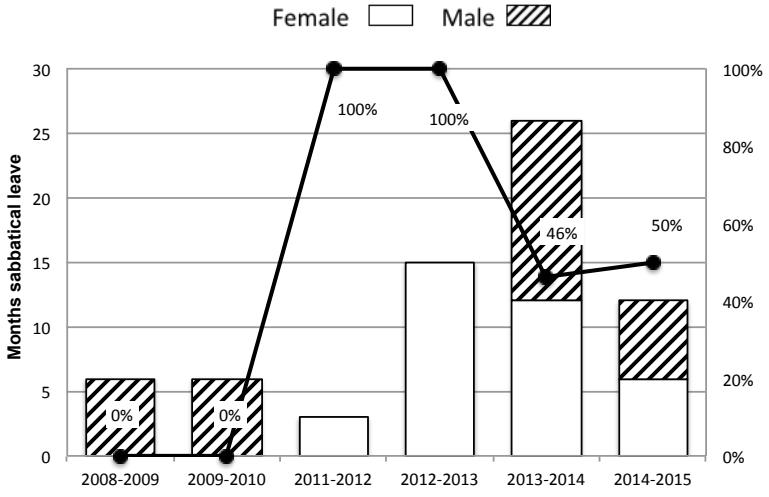



**Figure 20**: Months of **sabbatical leave** taken by female and male staff in the DMS and MEC combined.

A **staff-mentoring scheme** exists specifically for RS across the university and PIs make sure that their staff are aware of this (AP:8.1).

During **probation,** new academic and RS staff are provided with a senior colleague to act as mentor. Probation review meetings take place at least quarterly to support new staff and ensure they have access to appropriate training and career development opportunities (AP:8.1).

> *Quote 4: "Having a mentor during my probation gave me an opportunity for regular confidential conversations with a more experienced staff member whom I could rely on 100%. He gave me independent and impartial personal careers and professional development advice. For example he provided advice on my funding application which was then awarded to me." [Dr XXX, DMS]*

Following discussions with the Dean of Science and SoS SMT we have initiated a new mentoring scheme open to all staff (October 2014). All staff can request a mentor for a year to receive independent and impartial personal careers and professional development advice from a member of staff who is at least one career step ahead and is not the mentee's line manager (AP 8.1).

Academic and RS are encouraged to further their **personal development and leadership skills** by attending courses run by Professional Services at LU. All new employees receive an email upon appointment, which contains a link to the Staff Development webpages (AP:8.2). Probation supervisors discuss relevant courses and training is routinely discussed during PDR meetings. Leadership training opportunities include ILM qualifications and programs for staff moving into management or leadership roles. Data collected by the University in 2012 showed that only 11% of staff in the DMS and no staff in the MEC had management and leadership development training in the past 12 months. Since then we have promoted new initiatives to staff and uptake has increased, particularly by female staff (Table 24). In 2012-2013, the University ran two EPSRC-funded Developing Future Leaders training programmes. These programmes were advertised to all staff, and following strong encouragement from SMTs two members of staff in our Unit, both females, were awarded places (Quotes 5 and 6). The SoS also provided funding to allow a member of staff to attend the Leadership Foundation "Aurora" programme for females working in Higher Education.

These actions have had an important effect (Table 24). Moreover our staff survey data shows that the percentage of females who are aware of personal development opportunities both at university and at departmental level increased from 2013 (university 75%; department 75%) to 2014 (university 91%; department 82%; Table 30:4a,4g). Similarly, female staff reported an increase in career development and support from line managers (64% in 2014 vs. 50% in 2013; Table 30:4d,4e,4f).

> *Quote 5: "I was encouraged by my HoD to take up opportunities to develop my leadership skills. As a result I applied and was successful in winning a place on the University Developing Future Leaders training programme. This helped to raise my profile within the university and led to future research and management opportunities" [Dr XXX, MEC]*

| | Staff numbers F : M | F(%) |
|---|---|---|
| Academic Practice | 8 : 13 | 38% |
| Bespoke / Tailored | 2 : 8 | 20% |
| Essential training | 0 : 2 | 0% |
| Health and Safety | 0 : 1 | 0% |
| Management and Leadership | 3 : 0 | 100% |
| Personal and Skills Development | 8 : 23 | 26% |

**Table 24**: Number of staff undertaking **training** in the 2013-2014 academic year. Prior to this training attendance was not formally recorded.

In terms of **networking,** the DMS and MEC have a joint staff meeting twice a year. The "Maths Review" weekly research seminars target a broad audience and are well attended across the Unit. Following our move to a new, shared building with joint staff room, these seminars will be followed by refreshments (AP:8.3). Our PGR student seminar series is also attended by students across both departments.

More broadly, opportunities exist for networking within LU. The popular "Science Matters" conference runs annually for PhD students across the SoS (AP:8.3). The organising committees in 2013 and 2014 have included student SAT members who ensured female keynote speakers. Future conferences will include a conference display about Athena SWAN activities.

Staff are supported to engage in national and international networking activities outside the University (AP:8.3). Membership of appropriate organisations including LMS, IMA and PME is encouraged. Staff can apply for funding for conference attendance through the SoS small grant scheme for which priority is given to newly appointed or junior staff. We have created a childcare conference grant to cover childcare costs for conference attendance. This has already supported staff who might otherwise have had difficulty attending conferences (AP 10.4).

**5. Career development**

**5a) 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.**

**5a(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?**

All academic staff receive an annual PDR (AP:8.4). This involves a self-review of performance (research funding and outputs, teaching, impact and enterprise) followed by a meeting with the HoD and/or senior member of staff to set mutually agreed, achievable objectives for the next year, identify development and training needs and determine resources required to achieve these objectives. PDR meetings also provide an opportunity to discuss promotion and mentoring.

The criteria for **Promotion to Senior Lecturer** are circulated annually to all Academic staff with details of the procedure and guidance. Deans of Schools are also required to proactively identify staff deserving promotion or other rewards (salary increments, lump sums and team awards). Current criteria for Senior Lecturer are fairly quantitative and include research funding, number of publications, completed PhD students, teaching quality and contribution to administration and management. Staff may also approach Deans directly and School SMTs consider applicants to be put forward to the full panel. Staff may apply at any time for **Promotion to Reader and Personal Chair** following advertised criteria. For all promotion applications, maternity and sick leave are taken into account, for example the panel do not expect journal outputs or research grants for the relevant period.

In 2012, the LMS Good Practice report rated our promotion procedures as weak due to a lack of gender monitoring (Section 8bi). Consequently, we now monitor applications by gender (Tables 21-22) and recent analysis showed that while the success rate of applications from female staff was excellent, numbers of applications were low. Actions have been taken to raise awareness of the promotion process with positive impact. For example, promotion procedures and guidance has been emailed to all staff. We also use the Athena SWAN standing item in departmental staff meetings to remind staff about promotion, both to apply themselves or encourage others.

Following our report of promotion data at the SoS SMT meetings, the Dean of Science took significant positive action by personally approaching several female staff to encourage them to apply for promotion and more broadly to put themselves forward to be selected for leadership training programmes to strengthen their case for promotion (AP:8.5). As a result, two females have been promoted since 2013 (1 Senior Lecturer and 1 Professor) and two females have applied for promotion (outcomes pending).

> *Quote 6: "During 2012, I was strongly encouraged by the Associate Dean of Research to apply for the University's Developing Research Leaders programme. I was awarded £8,000 to engage in personal leadership development activities and undertake my own research leadership project tailored to the needs of my School. As a direct consequence of these activities I was encouraged by the Dean of School and the Provost and Deputy Vice-Chancellor to apply for a Personal Chair. I was promoted to Professor in May 2014." [Professor XXX DMS]*

The impact of our actions regarding promotion were reflected in the staff survey (Table 30: 5b) with an increase in the proportion of female staff reporting satisfaction with the progress they have made towards meeting their career goals between 2013 (50%) and 2014 (73%).

The University is currently undertaking a **review of its promotion criteria** and the impact on gender equality is being taken into account at all stages of this process. The revised criteria will reflect the new University Strategy of 'Building Excellence' by making explicit reference to research, teaching, enterprise, collegiality and leadership, including pastoral work and outreach. The Athena SWAN Champions are in contact with Prof. Morag Bell, PVCT (leading the panel reviewing promotion criteria) to ensure the new criteria take account of equality issues, for example promotion processes should not rely solely on quantitative criteria (AP:10.3).

To inform staff of these new criteria we will run a "Promotion Demystifying event", the first event will take place in February 2015 as a pilot for SoS staff before being expanded across the University. The event, funded by the SoS through the Athena SWAN budget, will include the Deputy VC outlining the new criteria as well as CV surgeries for staff. We will also use this event to

advertise the new SoS mentoring scheme and provide opportunities for staff to meet potential mentors (AP:8.5).

**5a(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?**

All new employees attend a University orientation day where they are provided with information regarding pensions, unions, policies and procedures (including flexible working), employee benefits, campus facilities and other useful information. All new employees are also encouraged to look at the University's "new employees" web page.

Within our departments, all staff are welcomed and introduced to department procedures by their Line Manager and administrative staff who discuss professional and personal development opportunities. In the MEC a formal induction takes place covering facilities, finance, communications, health & safety and training (AP:9.1). In the DMS this has happened informally, but following our move to a shared building, all new staff will undergo the same procedure (AP:9.1).

> *Quote 7: "When I joined the MEC I was given all the information I needed to settle in quickly and was made to feel welcomed to the department." [Dr XXX, MEC]*

To complete probation, all staff (including research staff) are required to attend a Respecting Diversity course (AP:9.1).

As part of our activities to raise awareness of Athena SWAN issues and opportunities, we have produced an Athena SWAN Statement (AP:2.1). This statement (Section 8a) draws together a number of activities we have undertaken and ensures that staff can find relevant information in one place. As a consequence of this the staff survey data of 2014 shows that 91% of female academics think that the Athena SWAN process has had a positive impact on the work environment and practices of the School/Department (Table 32: 1 & 2).

The Athena SWAN Statement is provided to all new staff and is available on department websites. It will be revised in the future to reflect new actions taken (AP:9.1).

**5a(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.**

The following activities are run by both male and female staff as part of their recognised workload.

**UG:** UG students have a personal tutor who supports their academic and personal development and welfare. They can request a female/male personal tutor. First-year students meet their personal tutor weekly to receive module help. Other students meet once a term to discuss module options, placements, study abroad and any other issues. Additional meetings can be scheduled if needed. Female students reported finding tutorials useful for their learning (83% in 2013, 70% in 2014; Table 29: 4b).

*Quote 8: "Our tutor was invaluable in supporting me with my studies, and helping to break down the lecture material into more understandable terminology. I was able to practice proving things and discuss weekly in an informal environment which encouraged me to feel more confident about the material. " [Ms XXX, UG student]*

*Quote 9: "Being part of a small personal tutor group enabled me to settle both into the course as well as the university itself. It also introduced me to my course mates who have been very useful throughout my first two years. Within the weekly tutor/tutee meetings we were able to discuss any issues that we had experienced and due to the small number of us, in general, all our questions answered." [Ms XXX, UG student]*

The MLSC provides study spaces, and one-to-one drop-in help from experienced mathematics lecturers. The MLSC is popular with students (Table 25, Figure 21). In our UG surveys, 50% / 59% of female and 48% / 50% of male students reported that they find the MLSC "Useful" in 2013 and 2014 respectively (Table 29: 4f).

| 2011-12 Number of visits | | | 2012-13 Number of visits | | | 2013-14 Number of visits | | |
|---|---|---|---|---|---|---|---|---|
| F : | M | F(%) | F : | M | F(%) | F : | M | F(%) |
| 1561 : | 1694 | 48% | 1140 : | 1369 | 45% | 939 : | 1303 | 42% |

**Table 25**: Number of **visits to the MLSC** by male and female Mathematics students

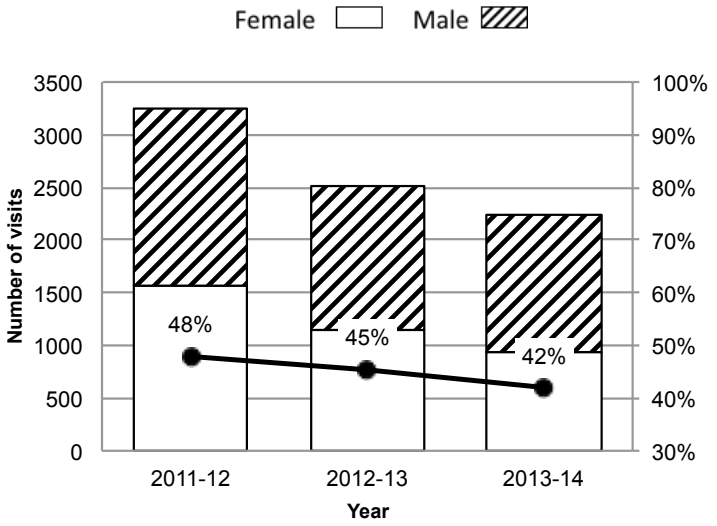



**Figure 21**: Number of **visits to the MLSC** by male and female Mathematics students

A peer-assisted learning (PAL) scheme was introduced in 2011-2012 in which third and fourth year students offered weekly PAL sessions for second year students. Volunteer PAL leaders have been recruited and each year since the scheme began there have been proportionally more female than male volunteers. Clearly volunteering in this way is particularly appealing to some female students and creates a valuable opportunity for them to develop their mathematical skills, build relationships within the community, and develop key employability skills. Similarly there is evidence that PAL attendance is more popular for female than male second year students. In the 2011-2012 academic year PAL attendance was monitored which revealed a higher proportion of

female (72%) than male (53%) students. We will monitor attendance at PAL sessions in the upcoming academic years to explore whether this is a consistent trend.

As described previously, we introduced a PGR seminar series for final-year UGs and a "Women In Mathematics" day designed to encourage female undergraduates to feel part of the mathematics community and provide positive female role models. As a consequence, one female attendee volunteered and is now a member of our SAT team. In our student survey less than 10% of female students reported being unable to identify with role models amongst the staff (Table 29: 7c).

We also run a Christmas Challenge every year in which prizes are offered for the best solutions to a series of mathematical problems. The challenge is open to all UG mathematics students. Since 2010, the prize has been won by 2 females and by 4 males. This challenge provides an opportunity for students to think outside the box and to be identified as potential PhD candidates – indeed one of the two female winners moved on to do a PhD at Warwick University. The successful female track record is used to encourage students to participate via a dedicated website with winners' photos.

> *Quote 10: "The mathematical questions in the Christmas Challenge inspired me to think about mathematics in a creative way and being successful in this led me to consider the idea of pursuing a PhD. The academic staff in the department have actively encouraged me in this direction by advising me on which area of mathematics would best suit my ability and which places I should consider in order to start my academic career in the best possible way. They also shared with me their own experiences and career paths, which was very helpful." [Ms XXX, former UG, currently PhD student at XXX University]*

Overall our student survey revealed that there was an increase from 2013 to 2014 in the proportion of female students who reported that they would recommend their mathematics course to others (55% vs. 65%; Table 29: 3d).

**PGR:** PGRs have a supervisory team including one or two supervisors and a Director of Research Degree Programmes. To progress through the PhD students must undertake training within the department (e.g. research workshops and lectures), through the Graduate School or externally as appropriate. Students are encouraged to attend a range of research seminar series. Students can apply for funding to attend external conferences from the Graduate School Conference Fund and departmental funds. Supervisors make students aware of these funding opportunities. Students approaching the end of their PhD are provided with support in applying for jobs and fellowships.

> *Quote 11: "In the final year of my PhD I was given encouragement and support by my supervisors and other senior academics in the department to write an application for an ESRC Future Leaders Grant. My application was successful and this award will give me the ideal first step in my academic career. " [Ms XXX, MEC]*

> *Quote 12: " My supervisors have been inspiring personalities, and all the academic staff in the department created an ideal, friendly and well-organised environment for postgraduate studies. I feel prepared for the next step in my career." [XXX, DMS]*

## 6. Organisation and culture

### 6a) 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.

### 6a(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.

Membership of key committees is determined by HoDs and the Dean. Prior to 2013/2014 there was a notable underrepresentation of female staff on these committees (Table 26). Actions we have taken to raise awareness of this have resulted in a marked increase in female representation (AP:9.2).

| | 2011-2012 | | 2012-2013 | | 2013-2014 | |
|---|---|---|---|---|---|---|
| | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) |
| DMS Senior Management Team | 0 : 7 | 0% | 1 : 6 | 14% | 1 : 6 | 14% |
| MEC Senior Management Team | 3 : 1 | 75% | 3 : 1 | 75% | 4 : 1 | 80% |
| School of Science Senior Management Team | 2 : 7 | 22% | 2 : 7 | 22% | 3 : 7 | 30% |

**Table 26**: Representation on Senior Management Teams.

### 6a(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.

The majority of academic staff are on open-ended contracts while the majority of RS are on fixed-term contracts (Tables 27-28). Consequently, the gender balance of fixed-term staff reflects that of RS and the gender balance of open-ended staff reflects that of academic staff.

| | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) |
| Fixed | | | | | | | | |
| Lecturer | 0 : 0 | N/A | 0 : 1 | 0% | 0 : 1 | 0% | 0 : 0 | N/A |
| Senior Lecturer | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 1 | 0% | 0 : 1 | 0% |
| Reader | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A |
| Professor | 0 : 3 | 0% | 0 : 2 | 0% | 0 : 0 | N/A | 0 : 0 | N/A |
| Total | 0 : 3 | 0% | 0 : 3 | 0% | 0 : 2 | 0% | 0 : 1 | 0% |
| Open-ended | | | | | | | | |
| Lecturer | 2 : 15 | 12% | 4 : 14 | 22% | 3 : 14 | 18% | 4 : 14 | 22% |
| Senior Lecturer | 3 ; 4 | 43% | 3 : 4 | 43% | 3 : 3 | 50% | 3 : 4 | 43% |
| Reader | 2 ; 4 | 33% | 2 : 5 | 29% | 3 : 4 | 43% | 3 : 5 | 38% |
| Professor | 1 : 9 | 10% | 1 : 9 | 10% | 1 : 9 | 10% | 1 : 9 | 10% |
| Total | 8 : 32 | 20% | 10 : 32 | 24% | 10 : 30 | 25% | 11 : 32 | 26% |

**Table 27**: Number of female and male **academic staff** on fixed-term and open-ended contracts for **Department of Mathematical Sciences** and **Mathematics Education Centre combined**.

| | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) | Staff numbers F : M | F(%) |
| Fixed | | | | | | | | |
| Research Grade 5 | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A | 1 : 0 | 100% |
| Research Grade 6 | 2 : 4 | 33% | 1 : 6 | 14% | 1 : 4 | 20% | 0 : 4 | 0% |
| Research Grade 7 | 0 : 0 | N/A | 0 : 1 | 0% | 1 : 1 | 50% | 1 : 0 | 100% |
| Research Grade 8 | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 1 | 0% |
| Total | 2 : 4 | 33% | 1 : 7 | 13% | 2 : 5 | 29% | 2 : 5 | 29% |
| Open-ended | | | | | | | | |
| Research Grade 5 | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A |
| Research Grade 6 | 0 ; 0 | N/A | 0 : 0 | N/A | 0 : 1 | 0% | 0 : 0 | N/A |
| Research Grade 7 | 0 ; 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A |
| Research Grade 8 | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 0 | N/A |
| Total | 0 : 0 | N/A | 0 : 0 | N/A | 0 : 1 | 0% | 0 : 0 | N/A |

**Table 28**: Number of female and male **research staff** on fixed-term and open-ended contracts for **Department of Mathematical Sciences** and **Mathematics Education Centre combined**.

**6b) 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.**

**6b(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?**

The LMS Good Practice report gave us a score of "Poor" for our organisational structure (Section 8bi). This negative report triggered discussions among staff at departmental meetings, within the SAT, and among the DMS, MEC and SoS SMTs. As a result:

- we began monitoring committee membership and highlighted these data to HoDs and the Dean,
- the SoS approved a policy that each permanent position hiring committee must include at least one man and one woman,
- the DMS HoD included a woman in the SMT and in the search committee for the new chair in Applied Mathematics,
- the SoS SMT created the role of Athena SWAN representative for the school who reports to the SMT,
- the MEC Athena SWAN champion was included in the MEC SMT,
- the SoS Athena SWAN representative was included in the hiring panel for the new Dean of Science.

Consequently our staff survey demonstrated that the percentage of female academics who agreed that there is appropriate representation of women on major committees increased from 25% in 2013 to 46% in 2014 and the percentage of male academics who felt there is appropriate representation of women on major committees decreased from 77% in 2013 to 36% in 2014, indicating an increased awareness amongst male academics about appropriate representation of females (Table 30: 1e).

We will continue to monitor committee membership and take actions to increase female representation. However given the small number of senior female staff it is important to balance the need for female representation with concern about overloading female staff with administrative duties. To address this issue adequately, membership of hiring committees will be a recognised role reflected in the workload model and the number of senior female staff must increase (AP:9.2).

**6b(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.**

Our Unit makes use of a workload model, which on an annual basis, takes into account teaching, research, pastoral and administrative responsibilities. Heavy administrative roles (e.g. Teaching Coordinator etc.) are rotated regularly and considered in promotion applications. Currently there is no gender monitoring of workload.

A new workload model is in the process of being introduced (AP:9.3) and the Athena SWAN Champions have been consulted to determine appropriate activities for inclusion. The Athena SWAN champions will be provided with an allocation of 100 hours (out of 1600). A further 150 hours can be split between SAT members in recognition of their duties. Membership of external committees (including LMS Women in Maths) and university leadership positions will also be recognised.

Crucially, workloads will now be monitored by gender. From the 2014-2015 academic year, the Athena SWAN Champions will provide feedback to the DMS Teaching Coordinator each May before new teaching allocations are determined for DMS and MEC staff (AP:9.3).

Due to the transition period between the old and new workload model, the staff survey shows that the number of males and females who think that the workload model is transparent has decreased in 2014 (Table 30:2b). We will ensure that information about the new workload model is circulated to all staff and feedback gathered (AP:9.3).

**6b(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.**

In the DMS, there are 5 research seminar series and a termly colloquium. These start between 1PM and 4PM. The arrangements for seminars are flexible and seminar organisers ask staff for feedback on planned times prior to scheduling.

In the MEC, three departmental research workshops take place each term, including internal and external seminar speakers and reading groups. Until 2013-2014 these were scheduled to finish after 5.30PM. Following our input the workshops will finish at 5pm from 2014/2015 (AP:9.4).

Interviews with female academics revealed that staff did not wish to condense meetings into the core hours of 10AM to 4PM because this would require them to be on campus more days per week. In contrast, female staff preferred the flexibility of being able to work from home once or twice a week, with the support of HoDs.

> *Quote 13: "As a result of the Athena SWAN actions, as Head of Department, I have become more consciously aware of issues to do with timetabling meetings and events at times which disadvantage some staff. I now seek to know the specific needs of staff so that I can avoid disadvantaging particular individuals. I also encourage other staff to be sensitive in these ways." [Prof XXX, MEC]*

Our staff survey demonstrated an improvement in the work-life balance of female staff. More female staff reported that they were able to successfully balance their work and personal life in 2014 (73%) compared with 2013 (50%) and there was a remarkable drop in the number of female staff reporting work life balance conflicts (67% in 2013 vs. 18% in 2014; Table 30: 2e &2f)

Following our move to a shared building in 2015, we will set-up a regular coffee time in the mornings to be held in the new, shared common room.

**6b(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.**

When our Athena SWAN process began in 2012, informal interviews with staff showed that most academics in DMS and MEC felt our gender balance was better than average for mathematics and felt no action was needed.

We formed a strong gender-balanced SAT team including five Professors (three male), the Heads of both Departments and the University Provost/Deputy Vice Chancellor. The commitment of these senior staff sent a strong message to all staff about the value of this activity. This had immediate impact in raising awareness and highlighting the importance of this topic.

Athena SWAN was introduced as a standing item on the DMS and MEC departmental meetings as well as in the SoS SMT. Consequently staff are reminded about gender issues and gender data are presented and discussed on a regular basis.

The change in awareness of gender issues has been clearly demonstrated. In the 2014 staff survey, it emerged that men in our Unit are much more aware about gender issues that they were in 2012 and 59% of them said that the Athena SWAN process helped them to think more broadly about gender issues (Table 32: 3). The same survey showed that women felt a lot more positive about the gender climate of the Unit with 91% of female staff reporting that Athena SWAN had a positive impact on the work environment and practices of the Department (Table 32: 1 &2).

Further evidence demonstrated raised awareness. Staff members voluntarily attended the "Women in Mathematics" event. Staff who are not SAT members have spontaneously emailed articles about gender or gender themed events to the champions in order to share information and start a debate. Key staff members including the Teaching Coordinator, Admission Tutors, Open day organisers and website manager have engaged with Athena SWAN activities and helped to make Athena SWAN part of the day-to-day running of the department.

In the Summer of 2014 we conducted a tick-chart survey to assess awareness of Athena SWAN activities (Section 8bv). This highlighted that our activities have had a positive impact on staff awareness on gender issues, resulting in an encouraging change of atmosphere:

> *Quote 14: "I came to Loughborough in 1987, and have always been aware of the disparity between the gender ratio among students and academics, but it is only since gender issues have been discussed systematically at Departmental meetings that I have begun to wonder why, when we have so many excellent female students, so few move on to an Academic career." [Dr. XXX, DMS]*

> *Quote 15: "I was always aware of the under-representation of women in our subject at all levels. However I only recently realised that much of this was due to female students' lack of confidence and in some cases lack of self esteem, rather than a lack of ability. Thus I support the new initiatives to look actively at ways to improve the situation, such as to encourage female students to pursue a PhD." [Prof. XXX, DMS]*

To ensure that progress is maintained we have initiated two new annual awards. The SoS will award a prize for a lecturer who has inspired female students and a new University award will recognise staff or students who have worked to promote gender equality (AP:9.1).

Overall there has been an increase in female staff perceptions that the department has a positive work environment (75% in 2013 vs. 91% in 2014; Table 30: 1a) and that there is real commitment at the University to promote equality and diversity (50% in 2013 vs. 82% in 2014, Table 30: 4c).

**6b(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.**

Outreach activities are formally recognised as part of the workload model and in promotion applications and form an important part of the work of the Unit. Seven male and five female academic staff have taken an active involvement in recent events for schools and teachers. They are supported in this by research students, research and administration staff. All staff take part in Open Days for school students.

Department staff take part in a wide range of activities to raise awareness and aspirations in young people to encourage them to consider studying STEMM subjects as well as to increase public understanding of STEMM research including:

- Interactive displays at community events (e.g. LU Family Science Fair and the East Midlands 'Big Bang');
- Sessions in primary schools to enthuse students about science
- Continuing Professional Development sessions for teachers about mathematics learning
- University Experience Days for Year 7-13 students offering a range of practical activities (e.g. workshops in discrete mathematics, ratio, coding).
- National Science and Engineering Week events
- Annual 'Suspense' and 'Rollercoaster' events for KS4 students,
- Conferences on Maths in Fashion, Sport, the Environment, at Work
- 'Why study Maths at A level and beyond' sessions for students, teachers and parents,
- A level, GCSE revision days, Year 10/12/13 Maths Challenges,

The **Further Mathematics Support Programme** is based in the MEC and runs enhancement events for Key Stage 3 - 5 students and provides support to students studying Further Mathematics.

**7. Flexibility and managing career breaks**

**7a) 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.**

**7a(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.**

Between 2009 and 2014 only one academic took maternity leave (6 months). Maternity leave data are recorded by the University.

**7a(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.**

Between 2009 and 2014 one lecturer took paternity leave and one female lecturer took adoption leave (7 months).

**7a(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.**

There is no red tape to request flexible working hours and therefore these data are not recorded. In the 2013 (and 2014) Athena SWAN staff survey, 100% (resp. 91%) of female and 85% (resp. 91%) of male staff reported that they made use of flexible working hours (Table 30: 2c).

**7b) 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.**

**7b(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.**

All staff have an opportunity to work flexible hours and to fit their teaching around personal commitments. When a new draft teaching timetable is produced it is circulated to all staff who can request that their teaching falls at certain days or times. In 2013/2014 nine requests were received and all were met. We will continue to monitor this. As highlighted in the case study (Section 10), staff are encouraged to discuss workloads and working patterns with managers during PDR meetings so that action can be taken where needed.

The staff survey data from 2014 shows an increase of the percentage of females who think they can manage their workload in the time available to them and who are successful in balancing their paid work and personal life (50% in 2013 vs. 73% in 2014; Table 30:2e). There has also been a substantial drop in the number of females who think that staff are regularly expected to put their jobs before their families (50% in 2013 vs. 9% in 2014; Table 30: 3b) and that staff are often expected to take work home at nights and week-ends (75% in 2013 vs. 27% in 2014; Table 30: 3d). Taking the option to work flexibly is not seen as detrimental to academic careers (Table 30: 3a)

**7b(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.**

When staff take parental leave, the University provides funds to cover teaching and administration duties. On their return, staff are allocated their existing modules (rather than new modules) to facilitate their return to work. No-one in our staff survey reported that there was a feeling of resentment when academics take parental leave (Table 30: 3g &3h).

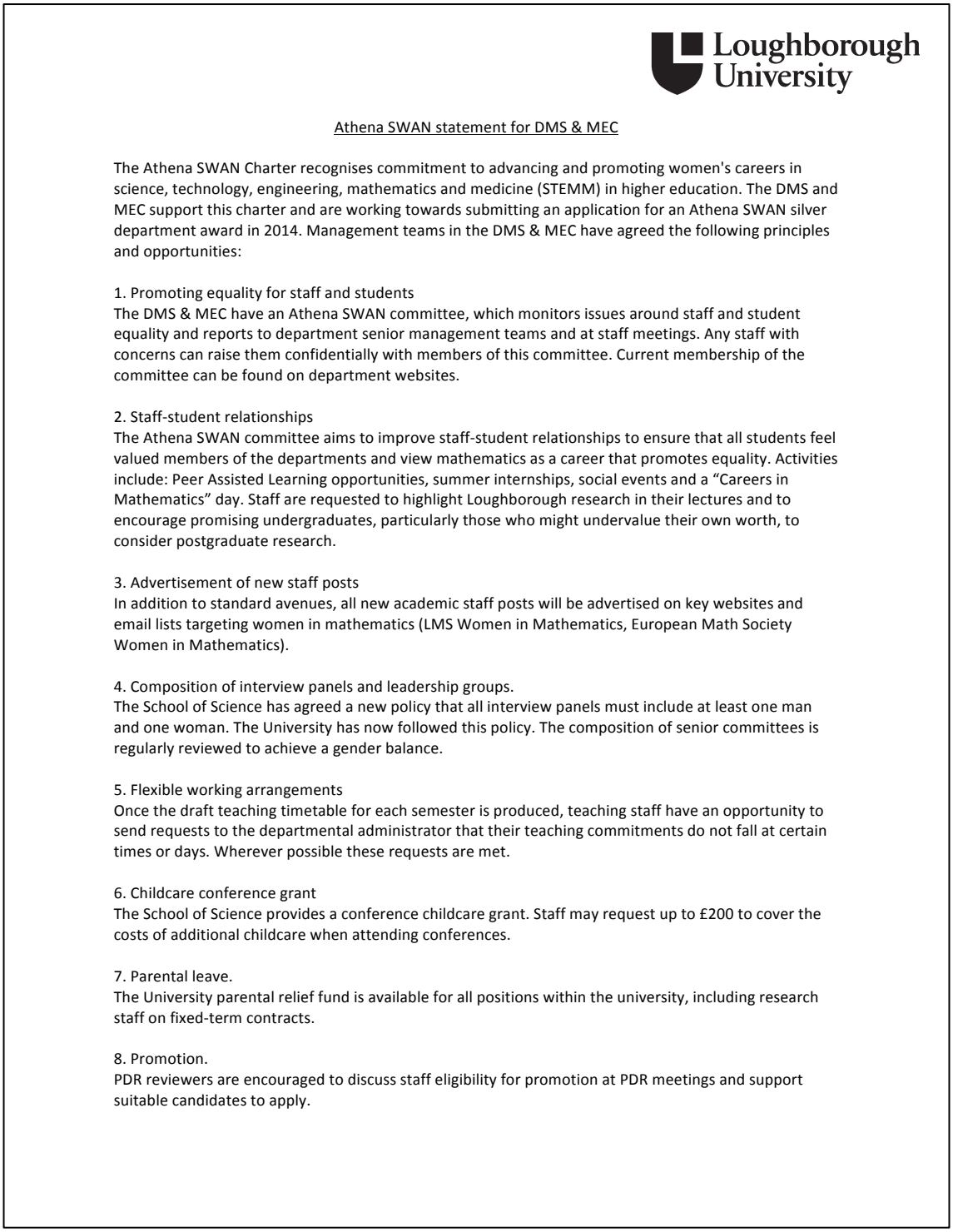
Following discussions led by the Athena SWAN champion the SoS SMT has recognized that staff returning from parental leave or long-term sickness absence should have a reduced workload. As everyone's circumstances vary, each situation is considered on a case-by-case. The reduction of workload will be monitored on an annual basis to ensure there is parity in the treatment of staff across the School (AP:10.2). The introduction of a more formalized policy has been agreed by the Dean and is under discussion.

**SECTION WORD COUNT = 5505**

**8. 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.**

**a) Athena SWAN statement:** We produced an Athena SWAN statement (Figure 22) about key policies and sources of information. This was circulated to all staff (June 2014), appeared in the inaugural SoS newsletter and is available on the Unit's webpages.



Loughborough University

Athena SWAN statement for DMS & MEC

The Athena SWAN Charter recognises commitment to advancing and promoting women's careers in science, technology, engineering, mathematics and medicine (STEMM) in higher education. The DMS and MEC support this charter and are working towards submitting an application for an Athena SWAN silver department award in 2014. Management teams in the DMS & MEC have agreed the following principles and opportunities:

1. Promoting equality for staff and students
The DMS & MEC have an Athena SWAN committee, which monitors issues around staff and student equality and reports to department senior management teams and at staff meetings. Any staff with concerns can raise them confidentially with members of this committee. Current membership of the committee can be found on department websites.

2. Staff-student relationships
The Athena SWAN committee aims to improve staff-student relationships to ensure that all students feel valued members of the departments and view mathematics as a career that promotes equality. Activities include: Peer Assisted Learning opportunities, summer internships, social events and a "Careers in Mathematics" day. Staff are requested to highlight Loughborough research in their lectures and to encourage promising undergraduates, particularly those who might undervalue their own worth, to consider postgraduate research.

3. Advertisement of new staff posts
In addition to standard avenues, all new academic staff posts will be advertised on key websites and email lists targeting women in mathematics (LMS Women in Mathematics, European Math Society Women in Mathematics).

4. Composition of interview panels and leadership groups.
The School of Science has agreed a new policy that all interview panels must include at least one man and one woman. The University has now followed this policy. The composition of senior committees is regularly reviewed to achieve a gender balance.

5. Flexible working arrangements
Once the draft teaching timetable for each semester is produced, teaching staff have an opportunity to send requests to the departmental administrator that their teaching commitments do not fall at certain times or days. Wherever possible these requests are met.

6. Childcare conference grant
The School of Science provides a conference childcare grant. Staff may request up to £200 to cover the costs of additional childcare when attending conferences.

7. Parental leave.
The University parental relief fund is available for all positions within the university, including research staff on fixed-term contracts.

8. Promotion.
PDR reviewers are encouraged to discuss staff eligibility for promotion at PDR meetings and support suitable candidates to apply.

**Figure 22**: **Athena SWAN statement** for all staff

**b) Data collection activities**:

Our data collection activities fed into all activities described in this application.

i) Within the **LMS "*Advancing Women in Mathematics: Good Practice in UK University Departments*"** activity (2012) we collected and analysed student and staff data (by gender) and compared it to national responses. The LMS provided us with a 'Comparative Report on Good Practice' for Loughborough with scores of Poor, Weak, Fair, Good or Very Good in 10 areas. We scored:

- **Poor** for:
  - organisational framework to deliver equality of opportunity and reward;
  - processes to collect, communicate and use quantitative and qualitative data for planning, monitoring and measuring success;
  - fair management and resourcing of administrative and academic contributions of staff.
- **Weak** for:
  - transparency and fairness of appointments and promotion processes;
  - ensuring all staff engage in career development activities.
- **Fair** for:
  - levelling the appointment and promotion playing fields;
  - career development provision for all;
  - arrangements for career breaks and interrupted careers.
- **Good** for:
  - the culture and ethos of our working environment;
  - ensuring the flexibility that underpins successful careers.

Specific recommendations for Loughborough were to: form a team to review the report and engage with the university Athena SWAN team; use quantitative and qualitative data to review the current department profile; review promotion and appointment processes. We have achieved these during the Athena SWAN process.

ii) From 2012 – 2014, the Athena SWAN Champions conducted 16 **informal interviews** with academic and research staff (including 6 female academics) to gather qualitative data on key aspects of the department culture and practices, particularly in relation to: promotion, workload, sabbatical/parental leave, career progression, and training opportunities. Informal interviews were conducted with students to gather qualitative data on opportunities for students, support and careers guidance.

iii) We ran bespoke **undergraduate student surveys** in October 2013 and 2014 asking about experiences of studying mathematics at Loughborough as well as attitudes to future study. Responses were gathered from 95 students (48 male, 47 female) in 2013 and 80 students (46 male, 34 female) in 2014 (Table 29).

| | % Agree or Strongly Agree | | | |
|---|---|---|---|---|
| | 2013 | | 2014 | |
| | Female | Male | Female | Male |
| **1. I decided to study mathematics at university because…** | | | | |
| 1a. I was very good at mathematics at school | 92 | 96 | 94 | 98 |
| 1b. I had a keen interest in studying more mathematics | 96 | 83 | 88 | 94 |
| 1c. I thought I would like to have a career which uses mathematics | 75 | 85 | 71 | 91 |
| 1d. I thought studying maths would improve my career prospects | 85 | 90 | 88 | 91 |
| 1e. I was advised by teachers or family members to study mathematics | 45 | 56 | 47 | 40 |
| **2. I wanted to study mathematics at Loughborough University because…** | | | | |
| 2a. …of the reputation of Loughborough University | 77 | 77 | 77 | 87 |
| 2b. …of the league table position of the Department | 53 | 54 | 56 | 67 |
| 2c. …of the research reputation of the Department | 30 | 25 | 21 | 22 |
| 2d. …I was impressed by a visit to the campus or department (*) | 58 | 76 | 71 | 68 |
| **3. Since coming to university…** | | | | |
| 3a. I still feel positive about mathematics | 66 | 75 | 62 | 78 |
| 3b. I realise that I am not very interested in mathematics anymore | 11 | 23 | 9 | 13 |
| 3c. My confidence in mathematics has grown | 49 | 42 | 35 | 65 |
| 3d. I would recommend my mathematics course to others | 55 | 71 | 65 | 72 |
| 3e. I find at least some of the mathematics very interesting indeed | 72 | 90 | 77 | 87 |
| **4. Approaches to learning** | | | | |
| 4a. On the whole, I learn a lot in lectures | 49 | 67 | 50 | 46 |
| 4b. On the whole, I find tutorials useful | 83 | 69 | 70 | 70 |
| 4c. I try to do almost all the work that is asked of me | 81 | 65 | 79 | 83 |
| 4d. I feel I am being drawn into a community of mathematicians | 30 | 48 | 33 | 37 |
| 4e. I would like more opportunity to influence the way I am taught | 70 | 65 | 68 | 54 |
| 4f. I have found the Mathematics Learning Support Centre useful | 51 | 48 | 59 | 50 |
| **5. Opportunities** | | | | |
| 5a. The opportunities provided to male and to female students in the department are comparable | 96 | 98 | 97 | 98 |

* responses from first year students only

**Table 29**: Highlights from the **student surveys** conducted in Autumn 2013 & 2014

| | % Agree or Strongly Agree | | | |
|---|---|---|---|---|
| | 2013 | | 2014 | |
| | Female | Male | Female | Male |
| **6. Postgraduate study of mathematics** | | | | |
| 6a. I am interested in postgraduate study of mathematics | 28 | 38 | 27 | 37 |
| 6b. I have been made aware of opportunities within the Department to undertake postgraduate study | 36 | 42 | 38 | 39 |
| 6c. I would consider undertaking postgraduate study of mathematics in Loughborough | 26 | 35 | 21 | 46 |
| 6d. I want to start a job as soon as possible to start earning money | 43 | 40 | 50 | 50 |
| **7. What factors have put you off postgraduate study?** | | | | |
| 7a. I am not confident enough to study more mathematics | 32 | 15 | 33 | 15 |
| 7b. I cannot afford to undertake postgraduate study | 28 | 23 | 18 | 17 |
| 7c. I find it difficult to identify with any role models amongst the staff of the department | 6 | 15 | 9 | 11 |

**Table 29 continued**: Highlights from the **student surveys** conducted in Autumn 2013 & 2014

iv) We surveyed **staff** attitudes in Autumn 2013 and 2014. In 2013 we took part in the national ECU Athena SWAN survey. We advertised and promoted this survey to staff and then extracted and analysed our department data. Response rates for our departments were 36% female (n = 4) and 39% (n = 11) male. In 2014 we ran a staff survey based on a subset of the questions in the ECU survey. Response rates were 85% female (n = 11) and 58% male (n = 22) (Table 30).

| | % Agree or Strongly Agree | | | |
|---|---|---|---|---|
| | 2013 | | 2014 | |
| | Female | Male | Female | Male |
| **1. Gender Culture** | | | | |
| 1a. My Department has a positive work environment. | 75 | 100 | 91 | 86 |
| 1b. Men have preferential access to lab / research space and resources in my Department. | 33 | 0 | 0 | 5 |
| 1c. Men do not receive preferential treatment in promotion in my Department. | 50 | 92 | 55 | 68 |
| 1d. In meetings in my Department staff / managers pay just as much attention when women speak as men do. | 50 | 100 | 82 | 87 |
| 1e. There is appropriate representation of women on major committees in my Department. | 25 | 77 | 46 | 36 |
| **2. Workload management and work-life balance** | | | | |
| 2a. I can manage my workload in the time available. | 50 | 46 | 64 | 73 |
| 2b. The Department workload model is transparent. | 50 | 23 | 36 | 23 |
| 2c. I make use of flexible working hours. | 100 | 85 | 91 | 82 |
| 2d. The Department actively promotes a healthy work-life balance. | 50 | 46 | 55 | 18 |
| 2e. I am successful at balancing my paid work and my personal life. | 50 | 69 | 73 | 59 |
| 2f. I face much conflict in balancing my work and personal life. | 67 | 23 | 18 | 32 |
| **3. Work-life balance culture** | | | | |
| 3a. In this Department, staff who use flexi-time are less likely to advance their careers than those who do not use flexi-time. | 0 | 8 | 0 | 0 |
| 3b. Staff are regularly expected to put their jobs before their families. | 50 | 25 | 9 | 14 |
| 3c. To be viewed favourably by the Department, staff must constantly put their jobs ahead of their families or personal lives. | 50 | 23 | 18 | 9 |
| 3d. Staff are often expected to take work home at night and weekends. | 75 | 77 | 27 | 50 |
| 3e. To get ahead, staff are expected to work more than 50 hours a week. | 50 | 46 | 9 | 32 |
| 3f. To turn down career opportunities for family-related reasons will seriously hurt one's career progress in this Department. | 50 | 27 | 9 | 23 |
| 3g. Many staff are resentful when men in this Department take extended leave to care for newborn or adopted children. | 0 | 0 | 0 | 0 |
| 3h. Many staff are resentful when women in this Department take extended leave to care for newborn or adopted children. | 0 | 0 | 0 | 0 |

**Table 30**: Highlights from the academic and research staff surveys conducted in Autumn 2013 and Autumn 2014.

| | % Agree or Strongly Agree | | | |
|---|---|---|---|---|
| | 2013 | | 2014 | |
| | Female | Male | Female | Male |
| **4. Career development and progression support** | | | | |
| 4a. Adequate opportunities exist within the University for personal development and training. | 75 | 92 | 91 | 64 |
| 4b. I have received rewards, incentives or awards from the University for my work. | 50 | 62 | 55 | 24 |
| 4c. There is real commitment at the University to promote equality and diversity. | 50 | 69 | 82 | 55 |
| 4d. My line manager or appraiser encourages me to progress in my career. | 50 | 62 | 64 | 64 |
| 4e. My line manager or appraiser encourages me to undertake further training and pursue personal development opportunities relevant to my career. | 50 | 46 | 64 | 50 |
| 4f. My line manager or appraiser gives me helpful feedback about my performance. | 75 | 62 | 91 | 59 |
| 4g. Adequate opportunities exist in my Department for personal development and training. | 75 | 69 | 82 | 64 |
| 4h. I would find a sabbatical beneficial. | 100 | 69 | 46 | 68 |
| **5. Career satisfaction** | | | | |
| 5a. I am satisfied with the success I have achieved in my career. | 50 | 85 | 73 | 64 |
| 5b. I am satisfied with the progress I have made toward meeting my overall career goals. | 50 | 77 | 73 | 59 |
| 5c. I am satisfied with the progress I have made toward meeting my goals for salary. | 50 | 85 | 64 | 32 |

**Table 30 continued**: Highlights from the academic and research staff surveys conducted in Autumn 2013 and Autumn 2014.

v) In June 2014 we conducted a brief anonymous **tick-chart survey,** which revealed a high level of awareness of Athena SWAN activities amongst staff (25 academic staff, 7 admin staff, 3 research staff) (Table 31).

| | % of respondents who answered Yes | | |
|---|---|---|---|
| | Academic staff | Admin staff | Research staff |
| Do you know who the Athena SWAN Champion in your department is? | 96 | 100 | 67 |
| Do you have any awareness of what Athena SWAN is about? | 92 | 100 | 67 |
| Has your awareness about Athena SWAN improved over the last 2 years? | 80 | 100 | 67 |

**Table 31**: Results of the tick-chart survey conducted in June 2014.

vi) In Autumn 2014, as part of our survey of academic and research staff we measured the impact of our Athena SWAN activities (Table 32). This revealed that the Athena SWAN process had a positive impact on the work environment and practices of the department, and had helped both male and female staff to think about gender issues. A substantial proportion of female staff reported that the process had a positive impact on their visibility within the department, their career development and leadership skills. These benefits spread beyond staff who were directly involved in the process, for example through membership of the SAT.

| | % Agree or Strongly Agree | |
|---|---|---|
| | Female | Male |
| **The Athena SWAN process has...** | | |
| 1. …had a positive impact on the work environment of the School / Department. | 91 | 50 |
| 2. …had a positive impact on work practices of the School / Department. | 91 | 46 |
| 3. …helped me to think more broadly about gender issues. | 82 | 59 |
| 4. …had a positive impact on my views on the advancement of women. | 46 | 32 |
| 5. …had a positive impact on my career development. | 46 | 5 |
| 6. …helped me to increase my self-confidence. | 27 | 5 |
| 7. …helped me to develop leadership skills. | 55 | 5 |
| 8. …helped to improve my visibility within my School / Department | 36 | 9 |

**Table 32**: Academic and research staff reflections on the impact of the Athena SWAN process, Autumn 2014.

**SECTION WORD COUNT = 608**

## 9. 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**.

**Please see Appendix**

**10. Case study: impacting on individuals: maximum 1000 words**

Describe how the department's SWAN activities have benefitted **two** individuals working in the department. One of these case studies should be a member of the self assessment team, the other someone else in the department. More information on case studies is available in the guidance.

**Case Study 1: Dr XXX (DPhil, MSc, BSc)**

**In her words:** Some confidential background information removed.

Before I came to Loughborough University, I had no immediate plans to leave the University of X. Funding for my position was secure (I was awarded a XX Fellowship in 2008 for 3 years) and I had recently returned to work part-time following the birth of my second child (my first child was born 2008 and second born 2010). However, after I was actively approached by researchers in the MEC and asked to join them at Loughborough University I did not hesitate to accept the offer. The excellent fit of my research to the Centre was made explicit and great opportunities for collaboration, field advancement and career progression were highlighted. Moreover, I was told that if I relocated to Loughborough University the MEC would offer Studentships to my two postgraduate research students and I could continue to work part-time flexibly to accommodate my childcare arrangements. I simply could not refuse and was extremely excited to work with colleagues who not only valued and respected me as a scientist but who also understood my family circumstances.

Since appointment, support from the MEC towards my career and personal development has been constant. For instance, before the end of my XX, my HoD played an instrumental role in helping me secure a subsequent position in the MEC. I was delighted to be offered a permanent Lectureship that was created for me and grateful that my HoD fully understood why I wanted to strengthen my research esteem further by applying for further fellowships before embarking on the traditional academic route. To assist, she dedicated time to review my fellowship proposals, wrote letters to support my applications, and the School and University agreed to fund 2 PhD Studentships linked to my fellowship. As a consequence, in 2013, I was awarded a five-year XXX Fellowship.

I began my new fellowship at the start of January 2014 and although I continued to work on a part-time contract, within a few months it became clear that, coupled with additional responsibilities (that I was keen to undertake), I was working full-time hours. I raised this issue with my HoD during a PDR meeting and after discussion we agreed that my hours of work would be increased to full-time. I was very happy with this amendment, particularly as my request to work flexibly (I work two days a week at home) to care for my children was received favourably.

**Case Study 2: Dr XXX (BSc, PhD)**

I joined Loughborough University as a Lecturer in Mathematics in March 2007. Prior to that, ….. I was attracted to move to Loughborough University and more specifically to the Department of Mathematical Sciences (DMS) because I was told by the Head of Department that the DMS was research intensive and actively encouraged conference participation. The University's family leave policy (with regards to flexible working) was also very appealing because my personal situation requires me to to commute on a regular basis to visit my son, who is now 13 years old.

The DMS have been very accommodating of my needs as a father by accepting my request to arrange the teaching time-table so that I do not have any lecture commitments scheduled on a Monday and Friday. As a consequence, this flexibility has enabled me to arrange transportation to and from Y at reasonable hours to subsequently ensure that I can spend quality time with my son at weekends -something I do appreciate.

In addition to understanding my familial circumstances and responsibilities, the DMS has also taken a vested interest in my career and personal development which has made me feel valued as a member of staff. Following encouragement from many members of staff, I applied and was promoted to Senior Lecturer in 2010 and Reader in 2013.

Finally, I feel it important to mention that since I joined the DMS, I became immediately aware of its strong supportive community. For example, everyone is always willing and ready to lead a hand with lectures and tutorials so that no one has to decline an invitation to present at another institution.

**SECTION WORD COUNT = 766**

**List of abbreviations:**

| | |
|---|---|
| CPD | Continuing Professional Development |
| DMS | Department of Mathematical Sciences |
| DRDP | Director of Research Degree Programmes |
| ECU | Equality Challenge Unit |
| EPSRC | Engineering and Physical Sciences Research Council |
| ESRC | Economic and Social Research Council |
| FMSP | Further Mathematics Support Programme |
| FTE | Full Time Equivalent |
| HESA | Higher Education Statistics Agency |
| HoD | Head of Department |
| HR | Human Resources |
| ILM | Institute for Leadership and Management |
| IMA | Institute for Mathematics and Applications |
| JACS | Joint Academic Coding System |
| LMS | London Mathematical Society |
| LU | Loughborough University |
| MEC | Mathematics Education Centre |
| MLSC | Mathematics Learning Support Centre |
| PDR | Performance and Development Review |
| PI | Principal Investigator |
| PME | International Group for the Psychology of Mathematics Education |
| PGR | Post-Graduate Research |
| PGT | Post-Graduate Taught |
| PVCT | Pro-Vice-Chancellor for Teaching |
| RS | Research Staff |
| SAT | Self Assessment Team |
| SEFS | Science & Engineering Foundation Studies Programme |
| SEFI-MWG | European Society for Engineering Education – Mathematics Working Group |
| SMT | Senior Management Team |
| SoS | School of Science |
| STEMM | Science, Technology, Engineering, Mathematics, Medicine. |
| UG | Undergraduate |

**Table 33**: List of Abbreviations.