Department Application
Gold Award

ATHENA SWAN GOLD DEPARTMENT AWARDS

A Gold department award recognises sustained progression and achievement, by the department, in promoting gender equality and addressing challenges particular to the discipline. A well-established record of activity and achievement in working towards gender equality should be complemented by data demonstrating continued impact. Gold departments should be beacons of achievement in gender equality, and should champion and promote good practice to the wider community.

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

COMPLETING THE FORM

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

This form should be used for applications for Gold department awards.

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

WORD COUNT

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

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

We have provided the following recommendations as a guide.

Gold Department application	
Word limit	**13,000**
Recommended word count	
1.Letter of endorsement	500
2.Description of the department	500
3. Self-assessment process	1,000
4. Picture of the department	2,000
5. Supporting and advancing women's careers	7,000
6. Case studies	1,500
7. Further information	500

Name of institution	**University College London (UCL)**
Department	**Department of Chemical Engineering**
Focus of department	**STEMM** ~~**AHSSBL**~~
Date of Gold application	**April 2017**
Date of current Silver award	**November 2013**
Institution Athena SWAN award	**Date:** **May 2015** **Level:** **Silver**
Contact for application Must be based in the department	Prof Marc-Olivier Coppens
Email	m.coppens@ucl.ac.uk
Telephone	020 7679 7369
Departmental website	http://www.ucl.ac.uk/chemeng

1. LETTER OF ENDORSEMENT FROM THE HEAD OF DEPARTMENT

Recommended word count: 500 words

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

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

DEPARTMENT OF CHEMICAL ENGINEERING
PROFESSOR MARC-OLIVIER COPPENS, FICHEME FAICHE
RAMSAY MEMORIAL PROFESSOR AND HEAD OF DEPARTMENT

28 April 2017

Equality Charters Manager
Equality Challenge Unit
First Floor
Westminster Tower
3 Albert Embankment
LONDON SE1 7SP

Re: Athena SWAN Gold Application

As Head of Department, I take special pride in writing this letter of support, having the privilege to lead a Department where gender equality and inclusiveness is not a box-ticking exercise, but an integral part of our culture. I confirm that the information presented in the application (including qualitative and quantitative data) is an honest, accurate and true representation of the department.

I am convinced that diversity underpins success. It is shameful that gender balance is not yet a given in our society, in particular in engineering, and we have a responsibility to rectify this. Luckily, at UCL Chemical Engineering, I am surrounded by enthusiastic colleagues who share my vision to bring us closer to realising our dream.

At UCL Chemical Engineering, we like to be in the vanguard, not just hoping but acting – providing conditions to not only hire the best female staff, but also to nurture their talent, through mentoring and opportunities. We now have three female professors in our Department who continue to climb the academic ladder and are a source of inspiration to us all, outperforming professorial requirements by leaps and bounds. They assume such roles as Deputy Head (Sorensen), EPSRC Research lead (Angeli), Academic Director for our new planned campus, UCL East (Lettieri). Four of our Teaching Fellows are female, and are equally inspiring.

We recruit more female students than the sector average, particularly for PGT. In our many outreach activities, we welcome many young women because of our 50-50 policy. I personally participate in these events, and I yearly mentor female students via the In2Science programme. These activities are important to our core mission, and I am thrilled that there is never a lack for volunteers!

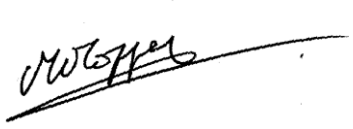
Our researchers took up my challenge to set up a Researchers' Society, CheERS, with our support but entirely led and organised by themselves. Within a short time, they have become a major driver for excellence through their many activities. Our new Industrial Advisory Board has been especially supportive of this, opening up new opportunities to our researchers by providing valuable guidance to our students. These activities are a direct result of the action points from our last submission.

Events together with our professional society, IChemE, have become “Beacon” activities to also support other chemical engineering departments, and our staff have also led workshops at the annual chemical engineering academic conference, receiving wide high praise.

It is encouraging that fostering an open environment has attracted more female and other underrepresented talents to join us. However, we are not there yet. Despite all diligent efforts, it has proven very difficult to attract any female lecturers. The number of female applicants remains painfully low, and, where offers have been made, two-body problems and London living have unfortunately remained deterrents, despite our many efforts. Nevertheless, with our proactive approach, I am determined that we will eventually succeed.

My hope is that the time will come when there will no longer be a need for awards, because we have achieved the gender equality that is only just and fair, and will make us collectively richer as humans. At UCL Chemical Engineering, we will continue to take a lead, fostering a culture of openness and tirelessly work to remove those barriers, sharing best practice and opening the doors to all, mentoring and promoting female chemical engineers in society.

Yours truly,



Marc-Olivier Coppens, FIChemE, FAIChE
Ramsay Memorial Professor and Head of Chemical Engineering
University College London

(556/500 words)

Abbreviations

AS	Athena SWAN
CE	Chemical Engineering
DHoD	Deputy Head of Department
DM	Departmental Manager
DRC	Departmental Research Committee
DTC	Departmental Teaching Committee
EC	Early Career
EDC	Equality & Diversity Committee
EFCE	European Federation of Chemical Engineering
EPSRC	Engineering and Physical Sciences Research Council
FTE	Full time equivalent
HCEUK	Heads of Chemical Engineering UK
HoD	Head of Department
IAB	Industrial Advisory Board
IEP	Integrated Engineering Programme
IChemE	Institution of Chemical Engineers
LGBTQ	Lesbian, Gay, Bisexual, Trans and Queer
NSS	National Student Survey
OS	Overseas
PDRA	Postdoctoral Research Associate or Researcher
PGR	Postgraduate Research student or PhD student
PGT	Postgraduate Taught student or MSc student
PI	Principal Investigator
PS	Professional Services
SAT	Self-Assessment Team
SMT	Senior Management Team
SSCC	Staff-Student Consultative Committee
UCL	University College London
UG	Undergraduate student

Colour code

	Feedback or comment
	Gold Action 2017
Beacon	Gold beacon activity
Action plan	Action plan 2013

2. DESCRIPTION OF THE DEPARTMENT

Recommended word count: 500 words

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

The UCL Department of Chemical Engineering is one of the oldest chemical engineering departments in the world and was the first to be established in the UK. It is now a medium-sized chemical engineering department and is located on the main UCL campus in central London. Over the last five years, the department has gone through an unprecedented period of expansion and change, including a new HoD in 2012. The UG intake has increased from 80 in 2010/11 to 160 in 2015/16. The number of PGRs and PDRAs has also increased dramatically following consistent success in the attraction of research funding. The current departmental composition is given in Table 1.

Table 1. Departmental composition (April 2017).

Group	Category	Total	Female		Part-time		Fixed term contract	
		No.	**No.**	**%**	**No.**	**No. female**	**No.**	**No. female**
Staff	Academic	21	3	14%	0	-	0	-
	Teaching Fellow	10	4	40%	3	1	0	-
	Researcher (PDRA)	42	10	24%	0	-	0	
	Technical	10	2	20%	0	-	1	
	Prof. Services	9	5	55%	0	-	2	1
Students	Undergraduate (UG)	480	129	27%	None		N/A	
	Postgraduate Taught (PGT)	44	23	52%				
	Postgraduate Research (PGR)	78	24	31%				

The department offers two undergraduate programmes, BEng and MEng in Engineering (Chemical), both with the option of a year in industry; the MEng also has the options of taking the final year abroad or with Biochemical Engineering. The programmes form part of the UCL Faculty of Engineering Sciences' Integrated Engineering Programme (IEP), which was launched in 2014/15 and is based on inter-disciplinary, problem-based, research-led teaching[1]. The introduction of the IEP has fundamentally changed the way we teach, and to be able to support the programme, we have recently hired eight full-time teaching fellows (three female), with either research or industrial experience, who support different aspects of the programme.

The department also offers two MSc programmes, one established (MSc in Chemical Process Engineering) and one new (MSc in Global Management of Natural Resources), which started in 2016/17 and is a joint degree with the University of South Australia.

[1] http://www.engineering.ucl.ac.uk/integrated-engineering/

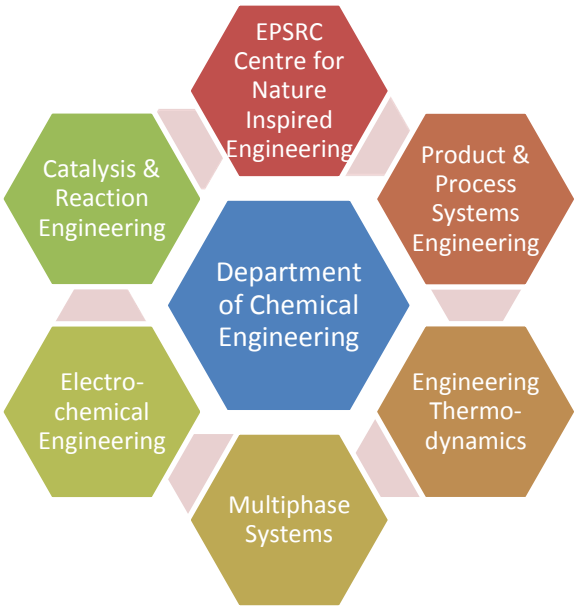


Figure 1. Departmental research groupings.

The research within the department is organised in six groups, including one EPSRC Centre, as shown in Figure 1. Academic staff and researchers, as well as PGR students, are associated with one or more of these groups. Some technical and professional services staff are associated with only one research group, while others work across groups. PGTs and final year MEng students conduct research within one of the research groups as part of their research projects.

The department is currently ranked 36th in the world for chemical engineering, and 5th in the UK, in the latest QS World University Ranking[2], a ranking which is predominantly based on research activity. The current standing within the National Student Survey (NSS) is not as good: we were ranked 20th out of 26 UK departments in 2016, with an overall satisfaction of 76% of our graduating UGs; however, these students were all following the pre-IEP programmes.

The rapid expansion has placed significant strain on our physical environment, and we are now struggling to sustain our activities within the space we have available, resulting in very cramped working conditions for staff, researchers and students. Some additional space has recently been made available, and a number of laboratories have been expanded and refurbished to support our new activities. We are about to commence a second extensive refurbishment of some of our office-based facilities, for both research and staff offices.

(*494/500 words)*

[2] https://www.topuniversities.com/university-rankings/university-subject-rankings/2017/engineering-chemical

3. THE SELF-ASSESSMENT PROCESS

Recommended word count: 1000 words

Describe the self-assessment process. This should include:

(i) a description of the self-assessment team

The self-assessment team (SAT) was established in 2007 for the preparation of our first Athena SWAN submission (Silver Award, 2009) and was later (2012) expanded to form an Equality & Diversity Committee (EDC) and to also consider equality issues other than gender. For ease of reference, in this document we will adopt the term SAT when referring to the committee and its work.

The SAT comprises 14 members (2016/17: five male, nine female and all 1 FTE) from all staff and student categories, including the DM (Lo/Bamford) and the HoD (Coppens), who are *ex-officio* members. The lead of the previous Athena SWAN submission (Brett) is also an *ex-officio* member, who provides continuity and experience. The two co-chairs of the SAT, one male and one female (Mazzei and Sorensen), are appointed for a period of three years or one Athena SWAN submission, and the membership of the other groups (one academic, one teaching fellow, one technical staff, one PDRA, two PGRs (one male and one female), one PGT and one UG) is rotated annually to ensure that knowledge of the work is spread throughout the department and to offer development opportunities as set out in our previous **action plan**. All the other departmental committees are managed similarly. The current membership of the SAT is listed in Table 2. The members have experiences of child care and elderly parent care responsibilities, maternity and paternity leave, transitions between different groups and grades, as well as other equality and diversity experiences.

Table 2. Members of the SAT / Equality & Diversity Committee (2016/17).

Group	Name	Joined UCL	M/F	Contract
Head of Department*	Marc-Olivier Coppens	2012	M	Open
Departmental Manager*	Claire Bamford	2016	F	Fixed***
	Sophie Lo**	2014	F	Open
Past SAT lead*	Dan Brett	2007	M	Open
Co-chair	Luca Mazzei	2009	M	Open
Co-chair	Eva Sorensen	1996	F	Open
Academic	Matteo Salvalaglio	2015	M	Open
Teaching Fellow	Folashade Akinmolayan‡	2007	F	Open
Technical Staff	Rebecca Belgrave	2015	F	Open
Researcher	Rema Abdul Aziz	2011	F	Fixed
Postgraduate Research	Dina Ibrahim Abouelamaiem	2014	F	*N/A*
Postgraduate Research	Vasileios Charitopoulos	2015	M	
Postgraduate Taught	Margarita Orozco Torres	2016	F	
Undergraduate	Anastasia Kislyak	2013	F	

**Ex officio*
**On maternity leave from December 2016
***Maternity cover
‡ Case study 1

For staff, membership of, and contribution to, departmental committees is accounted for in the workload allocation and is considered in annual appraisals.

All departmental staff and students are encouraged to participate in Equality & Diversity activities both within and beyond the department. One member (Abdul Aziz) was one of the founding members of the Faculty's UCL Student Society of Women Engineers, which was established in 2013, and two members (Charitopoulos and Ibrahim Abouelamaiem) were founding members of CheERS, the departmental postgraduate research student society, which was established in 2016. Several members (Brett, Sorensen, Abdul Aziz, Akinmolayan and Ibrahim Abouelamaiem) are very active in outreach activities at Faculty, university and national level.

(ii) an account of the self-assessment process

As all departmental committees, the whole SAT meets termly, although monthly in the last six months before an Athena SWAN submission. In addition, sub-groups of the SAT meet to discuss matters related to: i) staff, ii) PDRAs, iii) PGRs, iv) PGTs and UGs, and v) LGBTQ matters. Each sub-group runs separate annual focus groups and surveys, even if some span more than one grouping (e.g. PDRAs & PGRs, PGTs & UGs, LGBTQ & PDRAs and PGRs). The SAT also uses data provided by the university for both staff (biannually) and students (annually). Being the size of the department small, we mainly use focus groups rather than surveys, as we have found the response rate to be low for the latter.

The SAT reports at staff meetings (termly) and to a number of other committees both within the department and beyond, such as:

- Senior Management Team (SMT)
- Departmental Teaching Committee (DTC)
- Departmental Research Committee (DRC)
- Staff-Student Consultative Committee (SSCC)
- Faculty SAT

SAT student representatives report to the postgraduate society (CheERS) and to the undergraduate student society (Ramsay Society). The minutes from the SAT meetings are taken by the DM and are made available to all staff on the staff server.

As part of our university wide activities, we have worked with the MRCB Laboratory for Molecular Cell Biology (LMCB), who received an Athena SWAN Gold Award in 2016, and the Institute of Women Health and Division of Psychology and Language Science, in the preparation of our respective submissions, and have also participated in joint university activities with them, for instance in the Athena SWAN Conference *Signalling Cygnets: Sharing Knowledge and Practice* in October 2016.

Furthermore, we have worked extensively with the Heads of Chemical Engineering UK (HCEUK) and the Institution of Chemical Engineers (IChemE) on Athena SWAN activities, providing leadership on such activities across all 26 UK chemical engineering departments. We organise and host two annual events for PDRAs and PGRs ('*From PhD/PDRA into academia – what are the next steps?*' and '*From PhD/PDRA into industry – what are the next steps?*') which are open to delegates from all UK departments. We also instigated, and still run, an annual half-day workshop which is held every spring at the end of the annual ChemEngDayUK conference, this year in Birmingham in March

2017[3]. The conference is organised by the IChemE and Heads of Chemical Engineering UK (HCEUK). The focus of the workshops is to provide support for departments working towards a Bronze or a Silver award, to provide a network of support for female PDRAs and PGR students who are considering an academic career, and to coordinate activities across what is a very small UK chemical engineering community.

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

The SAT will continue to meet termly, while the sub-groups will do so when required to fit in with schedules within the committees we are supporting or reporting to. Surveys and focus groups have informed us that staff and students are far more concerned about other equality issues than gender. The main focus of our work at the moment is supporting our recently established LGBTQ society, with the goal of providing better understanding and acceptance of our LGBTQ staff and students [**Action 1.1**]. We will continue to contribute enthusiastically to UCL's Equality & Diversity and Athena SWAN activities, and to share our best practice, particularly within the wider chemical engineering community [**Action 7.1**].

(916/1000 words)

PGR Focus group 2016
Gender isn't an issue in this department; it's the other things such as supervision, space and other equality issues.

Action 1.1	Provide and monitor staff training related to LGBTQ.
Action 7.1	Continue to act as ***Beacon*** within UCL and the chemical engineering community.

[3] http://www.chemengdayuk.co.uk/

4. A PICTURE OF THE DEPARTMENT

Recommended word count: 2000 words

4.1. Student data

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

In the analysis below, the departmental profiles are compared with relevant profiles from HEFCE for JACS Principal Subject H8 (Chemical, Process & Energy Engineering), which are the closest equivalent to our programmes. In addition, the profiles are also compared with the average profiles of our main competitors (Imperial College London and the University of Manchester) for the same principal subject. All three institutions have a higher proportion of overseas students than the rest of the sector and recruit from the same demographics; we therefore use this data as an additional benchmark when analysing our student data.

The department only offers full-time UG, PGT and PGR programmes.

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

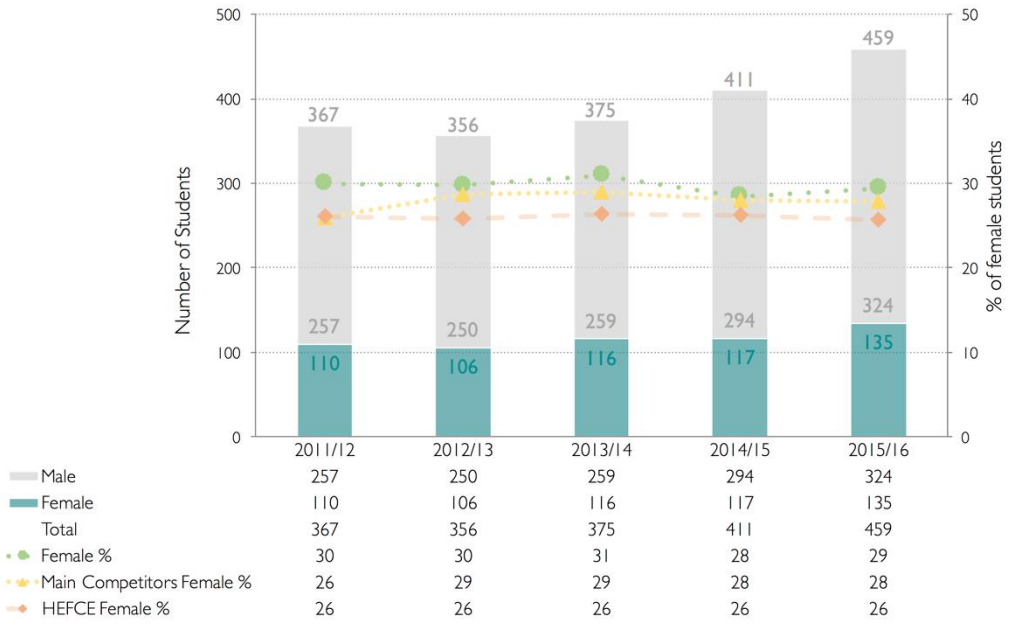
n/a

(ii) Numbers of undergraduate students by gender

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

Total student numbers for undergraduate degrees

The total number of male and female students on our two undergraduate programmes (BEng and MEng), together with the percentage of female students for our department and for HEFCE and main competitors, is shown in Figure 2.



	2011/12	2012/13	2013/14	2014/15	2015/16
Male	257	250	259	294	324
Female	110	106	116	117	135
Total	367	356	375	411	459
Female %	30	30	31	28	29
Main Competitors Female %	26	29	29	28	28
HEFCE Female %	26	26	26	26	26

Figure 2. Total number of male and female undergraduate students and percentage of female students compared with HEFCE for Chemical, Process and Energy Engineering and with main competitors (2011/12 – 2015/16).

Figure 2 shows that total student numbers have increased considerably over the five-year period. The percentage of female students has almost remained steady (28-31%), but always above the national one (26%) and those of our main competitors (26-29%).

Applications, offers and acceptance rates for undergraduate degrees

The total number of applications, offers, acceptances and intakes to our undergraduate programmes for male and female students, and the percentage of female students are given in Table 3 and Figure 3, while the conversion rates are given in Table 4 and Figure 4. The admissions process is entirely handled by UCL centrally, and the department has little influence over the offer process, which is based on A-level (and equivalent) entry requirements and involves no interview.

Table 3. Total number of undergraduate applications, offers, acceptances and intakes, and percentage of female students (2011/12 - 2015/16).

		2011/12	**2012/13**	**2013/14**	**2014/15**	**2015/16**
Applications	Female	232	257	295	311	297
	Male	595	591	671	664	763
	Total	**827**	**848**	**966**	**975**	**1060**
	% Female	28%	30%	31%	32%	28%
Offers	Female	191	171	216	209	224
	Male	446	322	500	470	574
	Total	**637**	**493**	**716**	**679**	**798**
	% Female	30%	35%	30%	31%	28%
Acceptances	Female	58	58	90	74	82
	Male	171	105	175	168	259
	Total	**229**	**163**	**265**	**242**	**341**
	% Female	25%	36%	34%	31%	24%
Intakes	Female	34	31	34	31	24
	Male	95	59	95	99	119
	Total	**136**	**84**	**136**	**141**	**170**
	% Female	25%	37%	34%	26%	28%

Table 4. Conversion rates for undergraduate applications, offers and acceptances (2011/12 - 2015/16).

		2011/12	2012/13	2013/14	2014/15	2015/16
Applications to Offers	Female	82%	67%	73%	67%	75%
	Total	**77%**	**58%**	**74%**	**70%**	**75%**
Offers to Acceptances	Female	30%	34%	42%	35%	37%
	Total	**36%**	**33%**	**37%**	**36%**	**43%**
Acceptances to Intakes	Female	59%	53%	51%	50%	56%
	Total	**59%**	**52%**	**51%**	**58%**	**48%**

Figure 3. Total number of undergraduate applications, offers and acceptances, and percentage of female students (2011/12 - 2015/16).

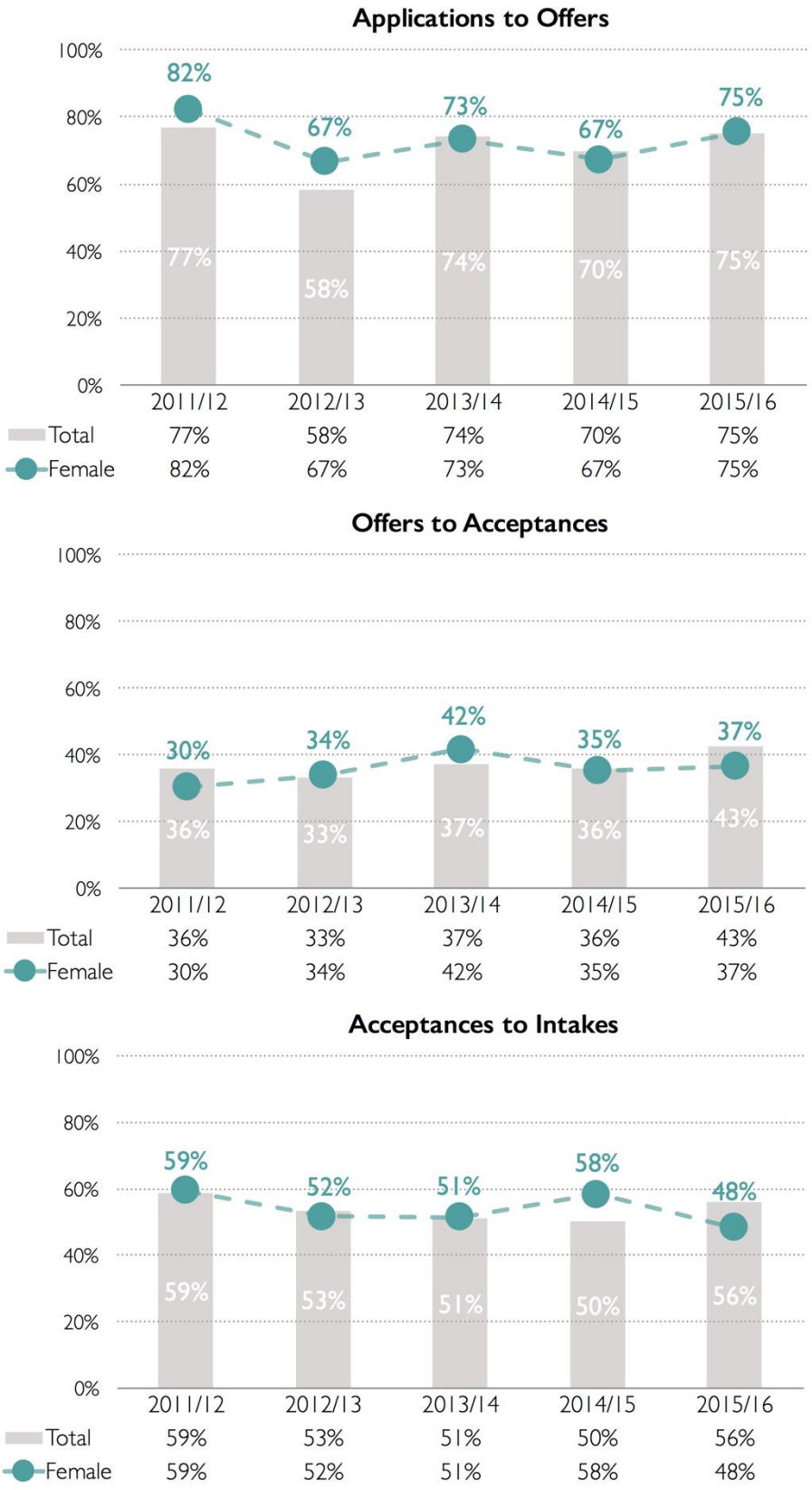


Figure 4. Conversion rates for undergraduate applications, offers and acceptances, and percentage of female students (2011/12 - 2015/16).

Table 3 and Figure 3 show that the percentage of applications from female applicants has fluctuated in a narrow range, between 28 and 32%. The offers made show a similar behaviour. The number of acceptances, conversely, has decreased from 36% in 2012/13 to 24% in 2015/16, although the intake has remained steady [**Actions 2.1 and 2.2**]. We believe that the acceptances are related to our low NSS scores, as female offer holders are reportedly more concerned than male about this during open days. Our teaching team is working hard to address the low scores.

Table 4 and Figure 4 show the conversion rates from Applications to Offers, from Offers to Acceptances and from Acceptances to Intakes. There is significant fluctuation in all the conversions. In terms of female students, the conversion rate that needs improving is that from Offers to Acceptances.

Action 2.1	Increase number of UG applications and offers for female applicants.
Action 2.2	Increase UG number of acceptances and rate of conversion from offers to acceptances for female UG applicants.

Degree attainment by gender for undergraduate degrees

The degree attainment by gender for undergraduate students is given in Figure 5. Female students are shown to consistently outperform male students; however, the number of students is small. A higher than average proportion of female students performed poorly in 2015 (seven students achieving an Other degree classification), but there were extenuating circumstances for most of these students, which are known to the department but not included here for confidentiality reasons.

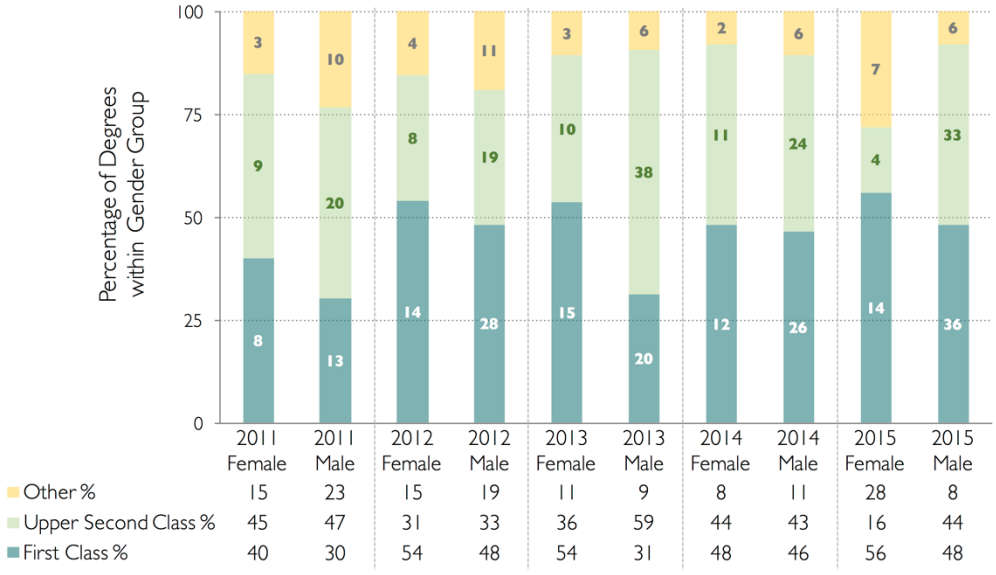


Figure 5. Degree attainment for male and female undergraduate students (2011/12 – 2015/16).

The department annually analyses the performance of all students. Given the diversity of the student body, we are now also considering both ethnicity and fee status in this analysis to establish if there are groups of students who are underperforming [**Action 1.2**]. This was an action point that was added to our **action plan** in 2016. Given the low number of students, the results have been averaged over the five years in the following as an illustration. Figure 6 shows the attainment over the five years by gender (top), by gender and ethnicity (middle) and by gender, ethnicity and fee status (bottom). This more detailed analysis has helped us pinpoint more precisely which student groups required more support.

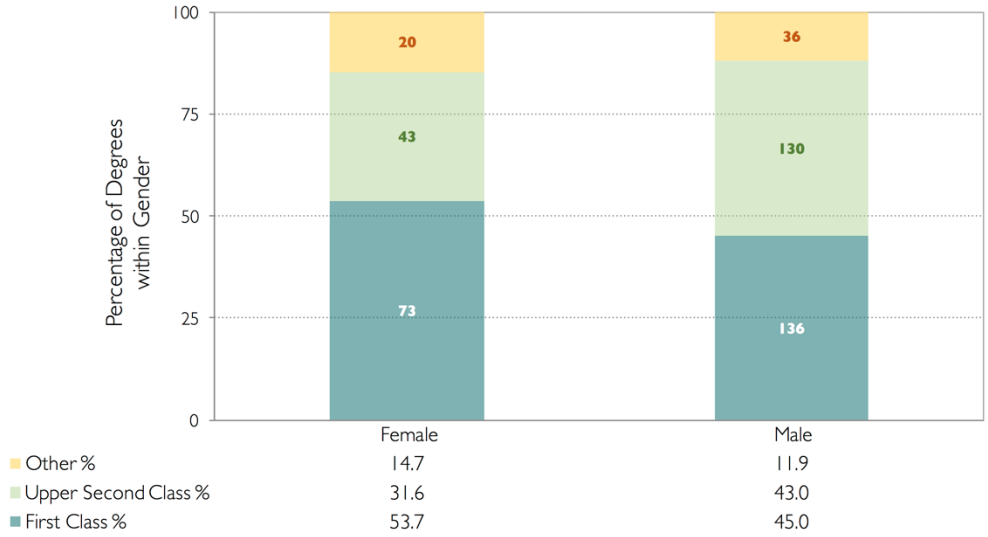
Figure 6 (middle) shows that, whilst female students outperform male students, white female students perform significantly better than female BME students, although the number of white students is low. The same trend can be seen for male students, but for male students, the proportion of students achieving Other degrees is higher for white students than for BME students.

Figure 6 (bottom) shows that when also considering fee status, overseas students are outperforming UK students for BME students, but UK students are outperforming overseas students for white students. It can also be seen that the number of female white UK students is very low, although they perform very well. Not shown in the figure is that the number of female white UK students has decreased over the last few years, and we are working to better understand this trend and to increase the proportion of this student group [**Action 2.3**].

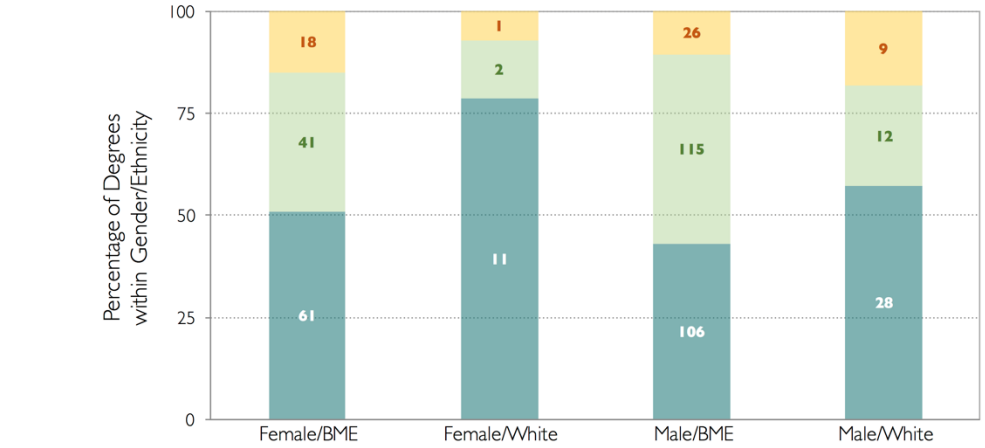
The gap in attainment is very large for male UK students (35% firsts for BME students versus 64% for white students), and we are working to better understand the causes for this gap, as well as the other attainment gaps revealed by our analysis, and to provide better support for our BME UK students [**Action 2.4**].

We do not have data for our students' socio-economic background, nor for their school background; this is unfortunate, as in studies of attainment gaps in pre-HE education both factors have been shown to be important and overlapping.

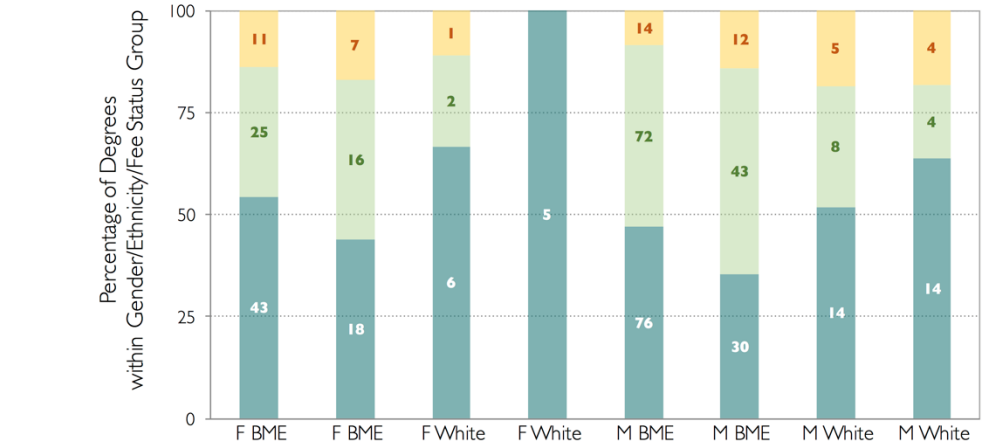
Action 1.2	Continue to analyse the performance of our students by gender, ethnicity and fee status.
Action 2.3	Increase the proportion of female white UK UG students.
Action 2.4	Better understand the causes of, and reduce, the gap in attainment among UK UG students of diverse ethnicities.



	Female	Male
Other %	14.7	11.9
Upper Second Class %	31.6	43.0
First Class %	53.7	45.0



	Female/BME	Female/White	Male/BME	Male/White
Other %	15.0	7.1	10.5	18.4
Upper Second Class %	34.2	14.3	46.6	24.5
First Class %	50.8	78.6	42.9	57.1



	F BME OS	F BME UK	F White OS	F White UK	M BME OS	M BME UK	M White OS	M White UK
Other %	13.9	17.1	11.1	0.0	8.6	14.1	18.5	18.2
Upper Second Class %	31.6	39.0	22.2	0.0	44.4	50.6	29.6	18.2
First Class %	54.4	43.9	66.7	100.0	46.9	35.3	51.9	63.6

Figure 6. Attainment of undergraduate student by gender, ethnicity and fee status averaged over five years (2011/12 to 2015/16).

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

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

One of our two existing programmes is currently in its first year; therefore, the analysis below is for the well-established programme only (MSc Chemical Process Engineering).

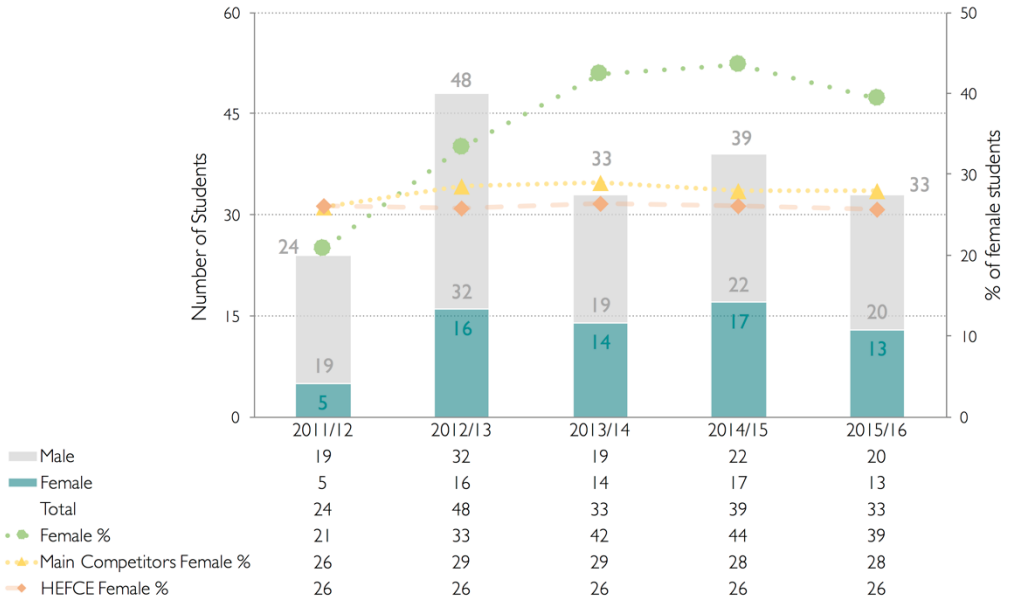
Hardly any of our undergraduate students proceed to our own MSc; they mainly go to industry with some to postgraduate programmes at other institutions, particularly to our main competitors, but also to Cambridge, and we actively encourage this to widen their horizons. We therefore recruit externally, both nationally and internationally, also for this programme.

Total student numbers for postgraduate taught degrees

The total numbers of male and female students on our PGT programme, together with the percentage of female students, for our department, HEFCE and main competitors, are shown in Figure 7. The figure indicates that the total number of students fluctuates, in the last three years between 33 and 39, having increased since 2011/2012.

The percentage number of female students has increased (apart from last year) as a result of our activities in the last **action plans 2009 & 2013**, in particular related to extensive "keep warm" activities and the dedicated focus by two 0.4 FTE teaching fellows (male), and its average value over the last three years is 42%, which is above the national one (26%) and above those of our main competitors (28%). We will continue our actions to maintain this positive gap, although we believe that increasing it further may be very challenging [**Action 2.5**].

Action 2.5	Maintain the proportion of female students on our postgraduate taught programmes.



	2011/12	2012/13	2013/14	2014/15	2015/16
Male	19	32	19	22	20
Female	5	16	14	17	13
Total	24	48	33	39	33
Female %	21	33	42	44	39
Main Competitors Female %	26	29	29	28	28
HEFCE Female %	26	26	26	26	26

Figure 7. Total number of male and female postgraduate taught students and percentage of female students compared with HEFCE for Chemical, Process and Energy Engineering and with main competitors (2011/12 – 2015/16).

Applications, offers and acceptance rates for postgraduate taught degrees

The total number of applications, offers, acceptances and intakes to our established PGT programme for male and female students and the percentage of female students are given in Table 5 and Figure 8, while the conversion rates are given in Table 6 and Figure 9. The admissions process is handled by UCL centrally and the department has little influence over the offer process which is based on a first degree entry requirement of 2.1 or higher and does not involve an interview.

Table 5. Total number of postgraduate taught applications, offers, acceptances and intakes, and percentage of female students (2011/12 - 2015/16).

		2011/12	2012/13	2013/14	2014/15	2015/16
Applications	Female	80	70	80	79	79
	Male	166	111	120	98	125
	Total	**246**	**181**	**200**	**177**	**204**
	% female	33%	39%	40%	45%	39%
Offers	Female	43	52	57	59	51
	Male	79	84	67	61	82
	Total	**122**	**136**	**124**	**120**	**133**
	% female	35%	38%	46%	49%	38%
Acceptances	Female	23	36	42	39	33
	Male	45	67	43	40	45
	Total	**68**	**103**	**85**	**79**	**78**
	% female	34%	35%	49%	49%	42%
Intakes	Female	8	16	14	17	13
	Male	14	28	18	23	19
	Total	**24**	**46**	**30**	**39**	**32**
	% female	33%	33%	42%	44%	39%

Table 6. Conversion rates for postgraduate taught applications, offers and acceptances (2011/12 - 2015/16).

		2011/12	2012/13	2013/14	2014/15	2015/16
Applications to Offers	Female	54%	74%	71%	75%	65%
	Male	48%	76%	56%	62%	66%
	Total	**50%**	**75%**	**62%**	**68%**	**65%**
Offers to Acceptance	Female	53%	69%	74%	66%	65%
	Male	57%	80%	64%	66%	55%
	Total	**56%**	**76%**	**69%**	**66%**	**59%**
Acceptance to Intakes	Female	35%	44%	33%	44%	39%
	Male	36%	48%	44%	55%	44%
	Total	**35%**	**47%**	**39%**	**49%**	**42%**

Figure 8. Total number of postgraduate taught applications, offers and acceptances, and percentage of female students (2011/12 - 2015/16).

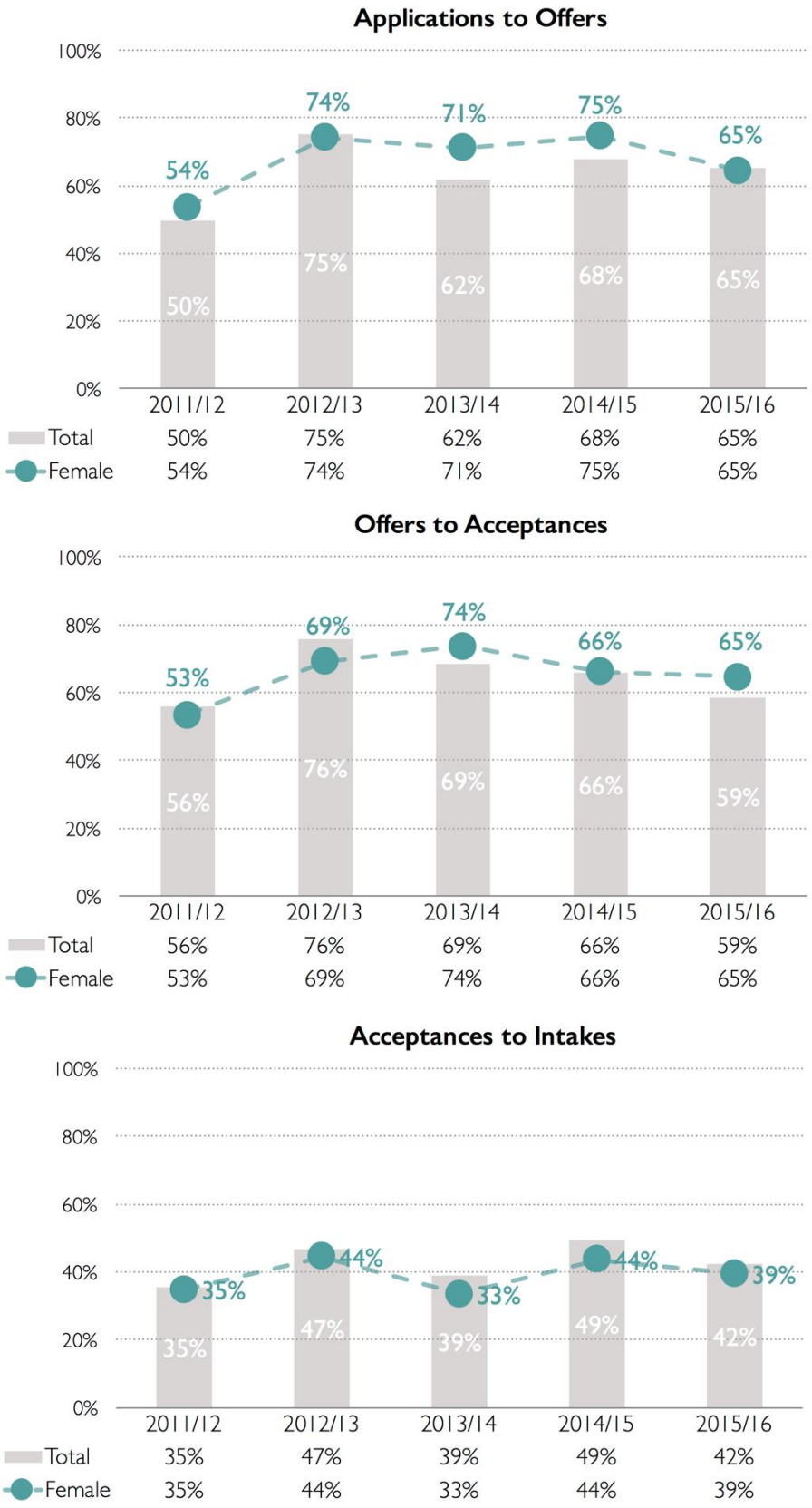


Figure 9. Conversion rates for postgraduate taught applications, offers and acceptances, and percentage of female students (2011/12 - 2015/16).

Table 5 and Figure 8 show that the percentage of applications from female applicants has fluctuated recently between 39 and 45%, having increased steadily between 2011/2012 and 2014/2015. A similar behaviour is shown for the offers and acceptances made. In 2015/16, the values have dropped for all groups, including for female (equivalent to two female students) [**Action 2.6**].

Table 6 and Figure 9 show the conversion rates from Applications to Offers, from Offers to Acceptances and from Acceptances to Intakes. The figure shows that all of them have fluctuated significantly over the last four years, but the conversion rate from Offers to Acceptances has decreased over the last three years [**Action 2.7**].

Action 2.6	Increase number of PGT offers and acceptances for female applicants.
Action 2.7	Increase the conversion of offers for PGT female applicants.

Degree attainment by gender for postgraduate taught degrees

The degree attainment by gender for PGT students is given in Figure 10. The number of students on the programme is rather small; however, female students appear to achieve fewer Distinctions, but also fewer Passes. This is in contrast to our findings for undergraduate students, where female students were found to outperform males. It should be noted that we do not recruit directly from our undergraduate programmes, but primarily from overseas. Also, around 30% of our PGT students do not have a chemical engineering first degree but are recruited from other related disciplines.

As for undergraduate students, the department annually considers attainment according to ethnicity and fee status; however, as the number of PGT students is so small, this analysis is not included here as individual students could be identified even if we averaged over five years. The analysis has shown that our students perform consistently above UCL average, and that overseas students outperform UK students.

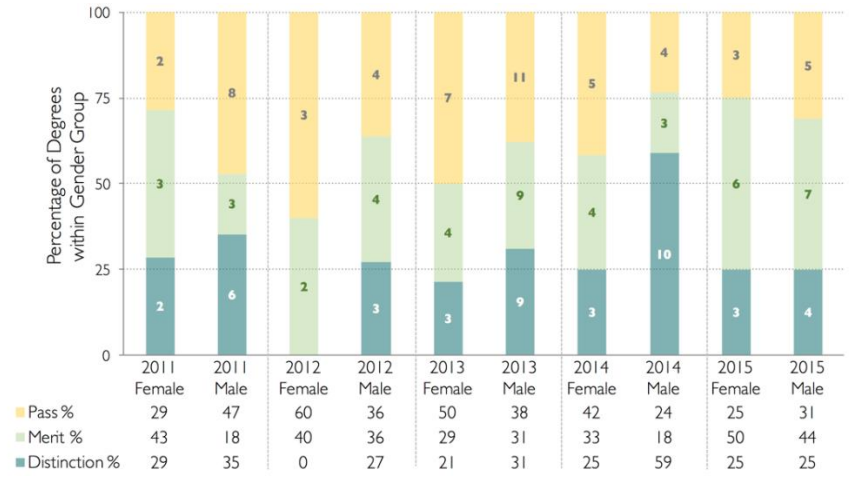


Figure 10. Degree attainment for male and female postgraduate taught students (2011/12 – 2015/16).

Degree completion rate for postgraduate taught programme

The degree completion rate for PGT courses is shown in Table 7 and Figure 11. As mentioned, the number of students on the programme fluctuates considerably; however, the proportion of students completing their programme is decreasing. This is primarily because in the last few years of this analysis we had admitted several students from a specific overseas institution that were found not to have the expected level of background knowledge for our programme, a problem also flagged up by our professional institution (IChemE) regarding this particular institution; thus, we stopped accepting these students.

Some of the students shown as not completing in 2014/15 completed their programmes in 2015/16; however, the complete 2015/16 data set is still unavailable from the university, and so these results are not presented here.

Table 7. Number of students completing postgraduate taught programmes to date (2010/11 - 2014/15).

	Entry:	2010/11	2011/12	2012/13	2013/14	2014/15
Starting course	Female	9	5	16	14	17
	Male	19	19	32	19	22
	Total	**28**	**24**	**48**	**33**	**39**
Completed (to date)	Female	8	5	14	11	11
	Male	17	15	27	14	16
	Total	**25**	**20**	**41**	**25**	**27**
Not completed (to date)	Female	1	0	2	3	6
	Male	2	4	5	5	6
	Total	**3**	**4**	**7**	**8**	**12**

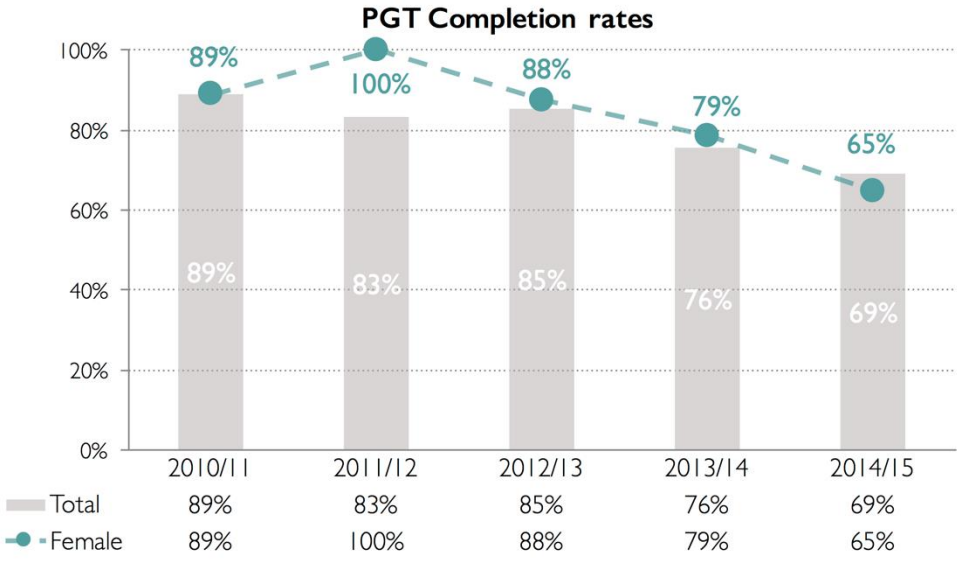


Figure 11. Percentage of students completing postgraduate taught programmes to date (2010/11 - 2014/15).

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

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

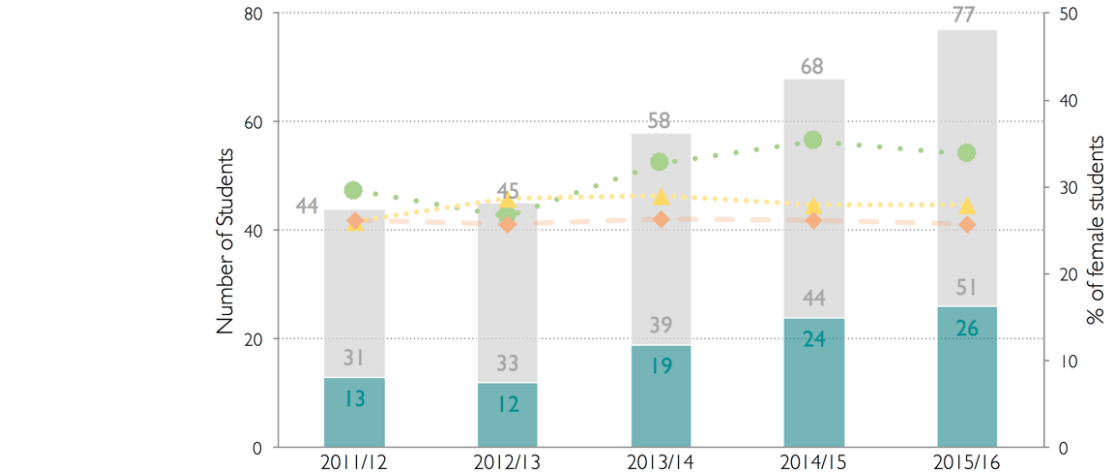
As previously mentioned, the research within the department is organised in six groups, including one EPSRC Centre, as shown in Figure 1. All postgraduate research students are associated with one or more of these groups.

Total student numbers for postgraduate research degrees

The total number of male and female students on our PGR programme, together with the percentage female students, for our department and for HEFCE and main competitors, is shown in Figure 12. The figure shows that total student number has increased significantly over the five-year period. The number of female students has increased slightly and is now on average 34% over the last three years, which is above national (26%) and above our main competitors (28-29%). This was a main focus point in our **action plan 2013** and we have recruited a number of female UGs into PGR as a result of open research days, and most effectively, through strong mentorship by both male and female academic staff.

We will continue our actions to maintain this positive gap and are aiming to increase the proportion closer to that of our MSc programme (42%) [**Action 2.8**].

Action 2.8	Further increase the proportion of female students on our postgraduate research programmes.



	2011/12	2012/13	2013/14	2014/15	2015/16
Male	31	33	39	44	51
Female	13	12	19	24	26
Total	44	45	58	68	77
Female %	30	27	33	35	34
Main Competitors Female %	26	29	29	28	28
HEFCE Female %	26	26	26	26	26

Figure 12. Total number of male and female postgraduate research students and percentage of female students compared with HEFCE for Chemical, Process and Energy Engineering and with main competitors (2011/12 – 2015/16).

Applications, offers and acceptance rates for postgraduate research degrees

The total number of applications, offers and acceptances to our PGR programmes for male and female students and the percentage of female students are given in Table 8 and Figure 13, while the conversion rates are given in Table 9 and Figure 14. The admissions process is handled by the department and all applicants are interviewed either in person or via Skype. Applications are considered throughout the year, with most students starting between September and November.

Table 8 and Figure 13 show that the percentage of applications from female applicants has increased steadily although the offers made have fluctuated, but the numbers are small. The acceptances number has decreased from 34% in 2013/14 to 27% in 2015/16 [**Action 2.9**].

Table 9 and Figure 14 show the conversion rates from Applications to Offers, from Offers to Acceptances and from Acceptances to Intakes. The figure shows that there is fluctuation in all the conversions, although female applicants are given more offers than male applicants.

Action 2.9	Increase the number of acceptances for female postgraduate research students.

Table 8. Total number of postgraduate research applications, offers and acceptances, and percentage of female students (2011/12 - 2015/16).

		2011/12	2012/13	2013/14	2014/15	2015/16
Applications	Female	11	17	21	27	34
	Male	47	50	48	69	61
	Total	**58**	**67**	**69**	**96**	**95**
	% female	19%	25%	30%	28%	36%
Offers	Female	7	9	15	10	10
	Male	19	19	23	31	26
	Total	**26**	**28**	**38**	**41**	**36**
	% female	27%	32%	39%	24%	28%
Acceptances	Female	4	8	10	8	8
	Male	12	15	19	24	22
	Total	**16**	**23**	**29**	**32**	**30**
	% female	25%	35%	34%	25%	27%

Table 9. Conversion rates for postgraduate research applications and offers (2011/12 - 2015/16).

		2011/12	2012/13	2013/14	2014/15	2015/16
Applications to offers	Female	64%	53%	71%	37%	29%
	Male	40%	38%	48%	45%	43%
	Total	**45%**	**42%**	**55%**	**43%**	**38%**
Offers to acceptances	Female	57%	89%	67%	80%	80%
	Male	63%	79%	83%	77%	85%
	Total	**62%**	**82%**	**76%**	**78%**	**83%**

Figure 13. Total number of postgraduate research applications, offers and acceptances, and percentage number of female students (2011/12 - 2015/16).

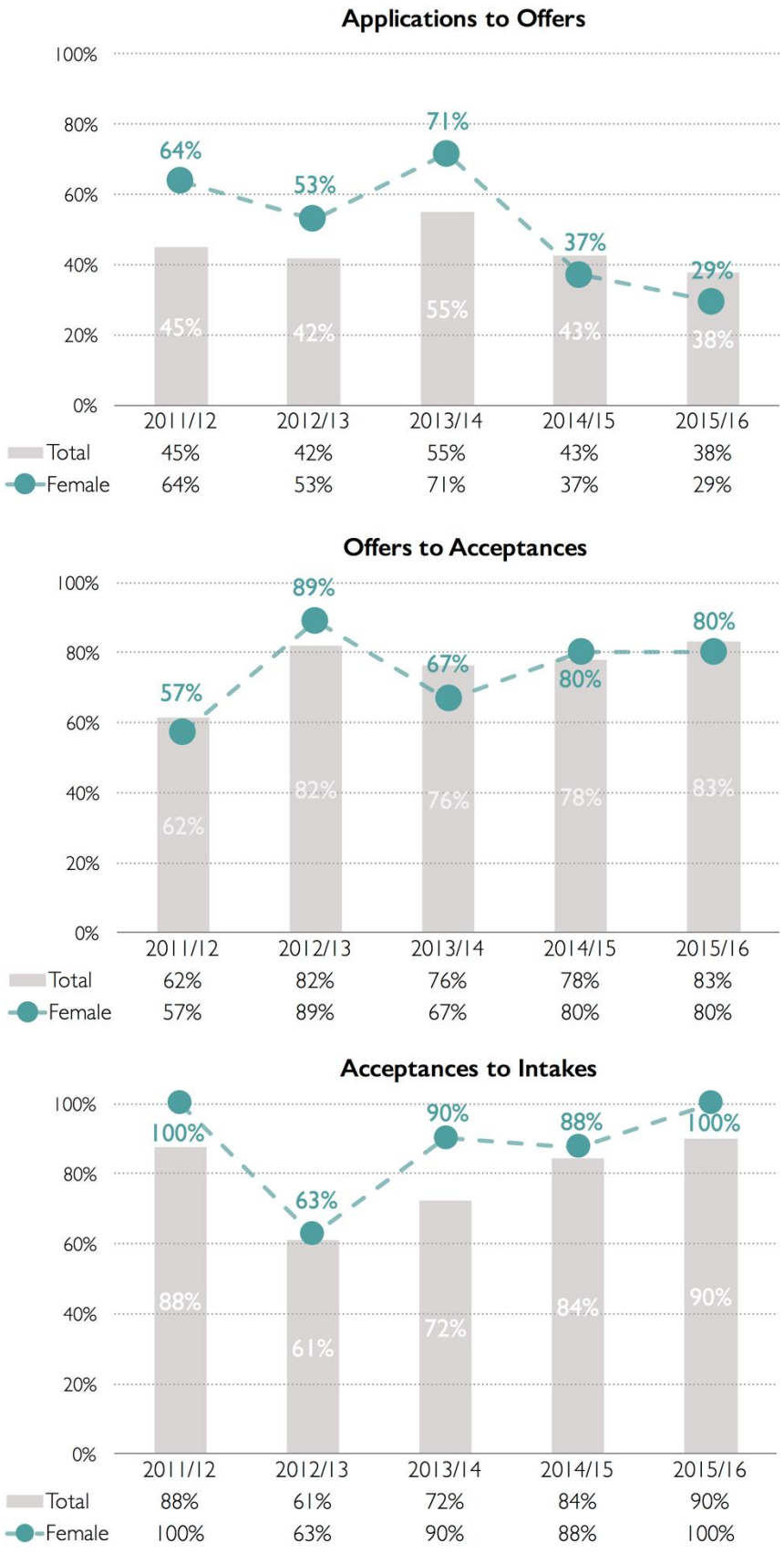


Figure 14. Conversion rates for postgraduate research applications, offers and acceptances, and percentage number of female students (2011/12 - 2015/16).

Degree completion rate for postgraduate research programme

The degree completion rate for PGR programmes is shown in Table 10 and Figure 15. Female students are consistently completing their degrees faster than male students, except for the 2010/11 entry where the completion rate is the same. It should be noted that the number of students is very low, with only three female students for most entry years.

Table 10. Number of students completing postgraduate research programmes to date (entry year 2006/07 - 2010/11).

	Entry:	**2006/07**	**2007/08**	**2008/09**	**2009/10**	**2010/11**
Numbers starting Doctorates	Female	3	3	3	6	3
	Male	3	5	6	7	12
	Total	**6**	**8**	**9**	**13**	**15**
Average time to submission [years]	Female	3.44	3.99	3.66	4.11	4.20
	Male	3.91	4.21	4.36	4.53	4.18

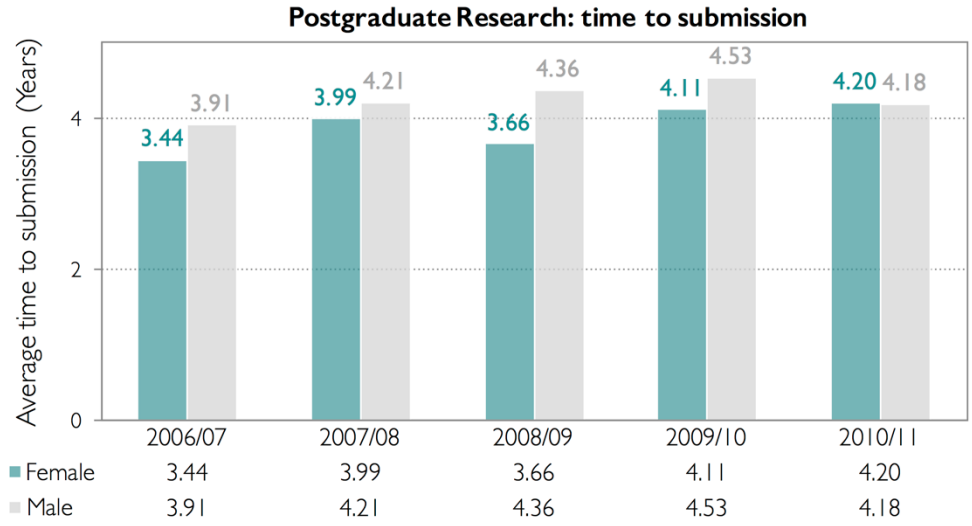


Figure 15. Percentage of students completing postgraduate research programmes to date (entry year 2006/07 - 2010/11).

(v) Progression pipeline between undergraduate and postgraduate student levels

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

The pipeline between undergraduate and postgraduate degrees is given in Figure 16, which shows the percentage female students on each degree over the last five years. We identified postgraduate degree programmes as an area of main focus in our last **action plan** with the aim to attract more female students into research and ultimately into academic positions either within the department or elsewhere. This has been successful as can be seen from the figure, particularly for PGT. The proportion of female students on our undergraduate programmes has, however, stagnated and we will focus on improving intake to these programmes in the future [**Actions 2.1, 2.2 and 2.10**].

Action 2.1	Increase number of UG applications and offers for female applicants.
Action 2.2	Increase UG number of acceptances and rate of conversion from offers to acceptances for female UG applicants.
Action 2.10	Increase the proportion of female undergraduate students.

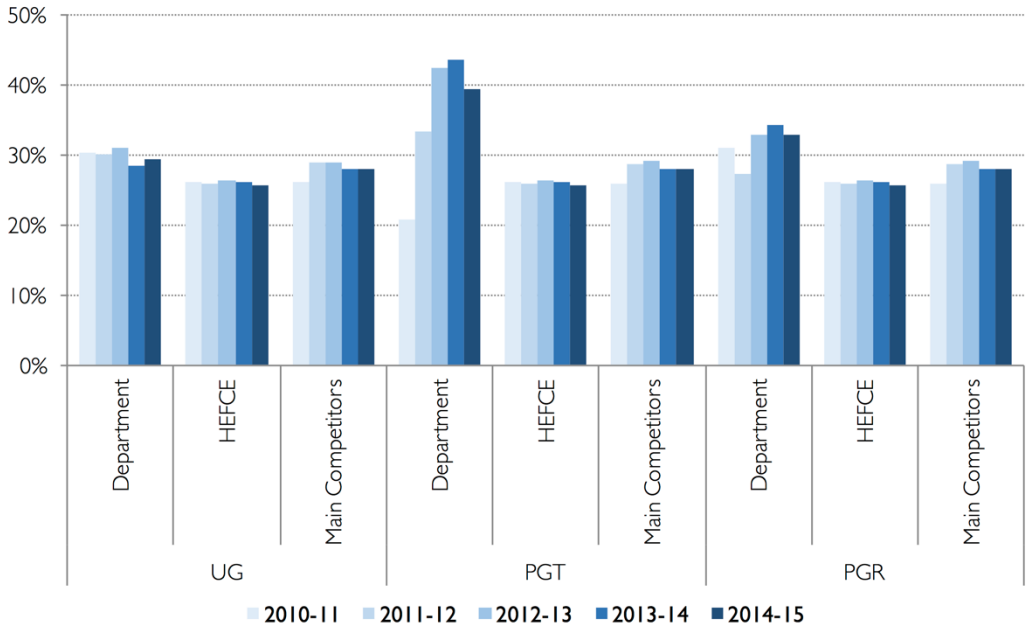


Figure 16. Percentage of female students on undergraduate (UG), postgraduate taught (PGT) and postgraduate research (PGR) (2011/12 - 2015/16).

4.2. Academic and research staff data

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

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

Staff numbers within the department have increased in recent years as a result of the expansion of our research activities. We have also expanded in terms of new teaching-only staff to support our new undergraduate programme, the Integrated Engineering Programme (IEP), which is heavily based on project/problem-based learning. Total staff numbers over time are given in Figure 17, and a snapshot of the academic pipeline is shown in Figure 18 based on the UCL staff codes given in Table 11.

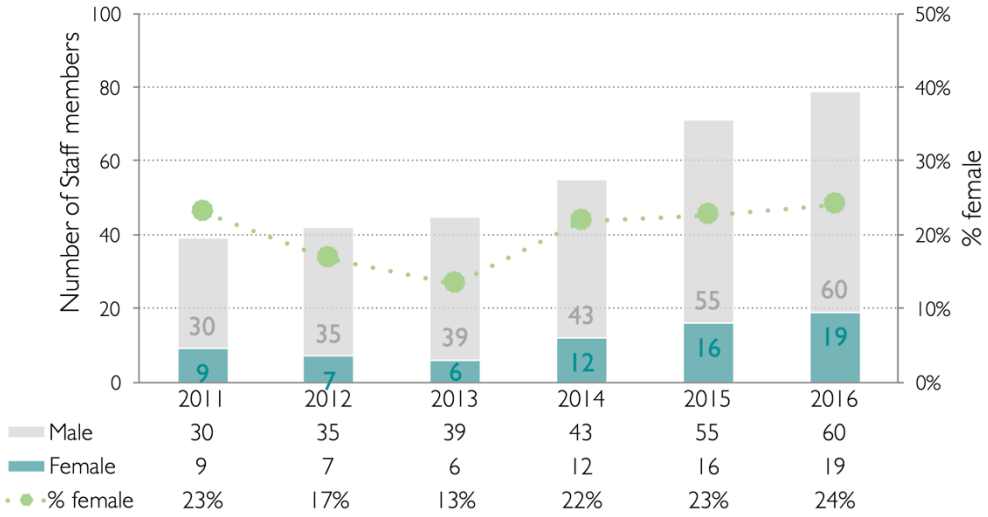


Figure 17. Total academic staff numbers (2011 - 2016).

Table 11. UCL staff codes.

Code	Staff category
1	Research Assistant
2	Research Fellow
3	Lecturer, Teaching Fellow, Senior Research Fellow, Senior Teaching Fellow
4	Senior Lecturer, Principal Teaching Fellow, Principal Research Fellow
5	Reader
6	Professor

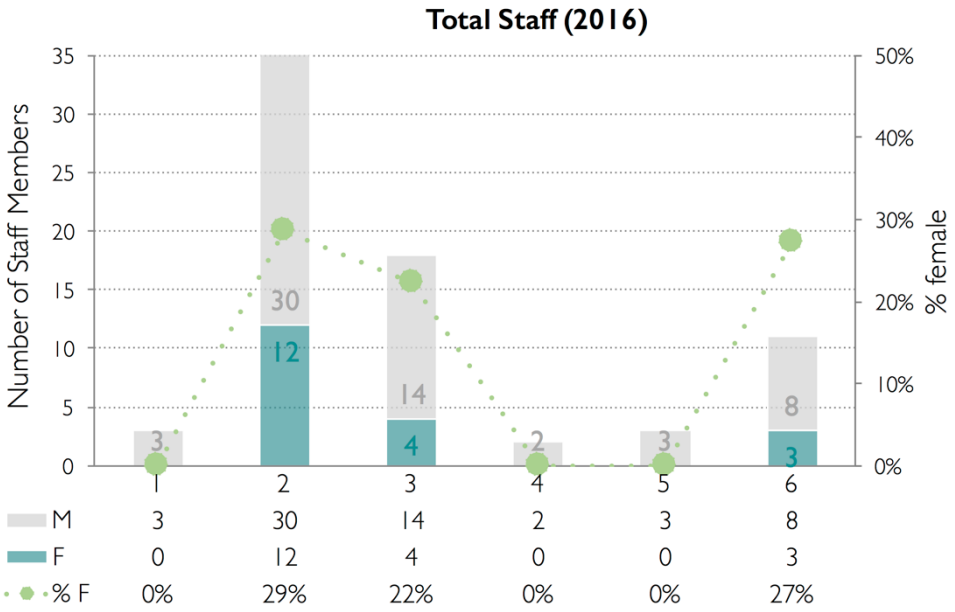


Figure 18. Total staff numbers and percentage of female by staff code for 2016.

The staff consists of research-only staff (Research Assistant, Research Fellow, Senior Research Fellow, Principle Research Fellow), teaching-only staff (Teaching Fellow, Senior Teaching Fellow, Principle Teaching Fellow) and research & teaching staff (Lecturer, Senior Lecturer, Reader, Professor) as shown in Figure 19.

In the past, teaching-only staff was limited to part-time staff, who were retired industrialists hired to assist with the delivery of design projects. With the introduction of the IEP, a number of teaching-only staff have been recruited, either with 5-8 years industrial experience (for design) or with PhDs for project/problem-based learning.

Figure 18 and Figure 19 show that there are no female staff at level 4 or 5 as we are predominantly recruiting into lecturer level and have been unsuccessful in attracting female staff at this level; hence, there is no pipeline to promote. The female staff at level 3 are recently-hired Teaching Fellows. All female academic staff (teaching & research) are professors.

(ii) Where relevant, comment on the transition of staff between technical and academic roles.

There is current no transition route for staff between technical and academic roles within the department or within the university.

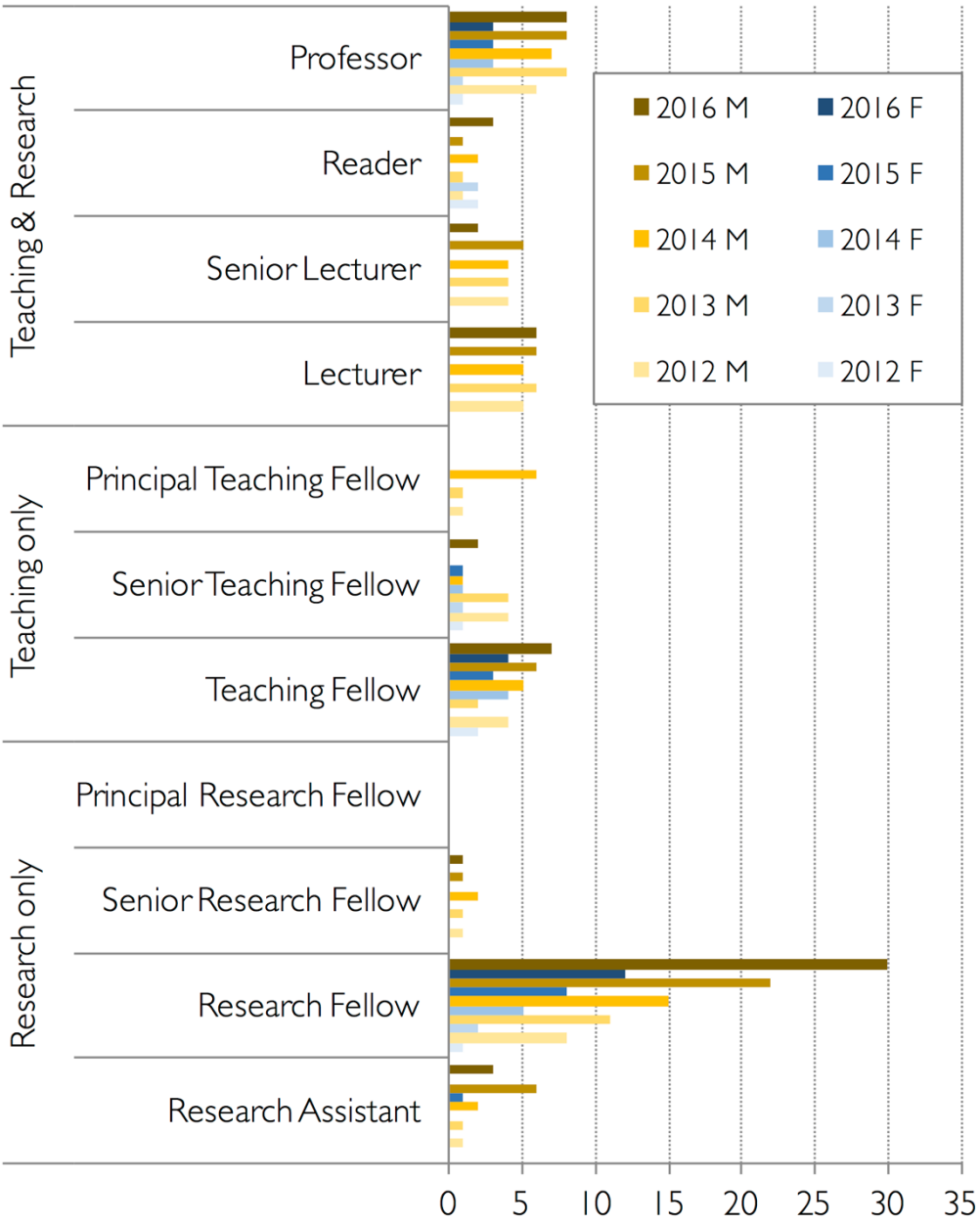


Figure 19. Staff by teaching, research and teaching & research role (2012 – 2016).

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

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

All academic staff are on permanent full-time contract, as are all teaching fellows apart from two male teaching fellows (40% teaching and 60% research) who are on fixed-term contacts.

All research staff are on fixed-term contracts which are linked to research funding. When a contract comes to an end, the contract will be extended if at all possible, for instance with the help of bridge funding, or the researcher can enter UCL redeployment pool to transition to a new post within UCL. We also very actively support PDRAs making contacts with potential employers at other institutions (***Beacon*** activities) or with industry (IAB and ***Beacon***) and provide support for Fellowship applications.

UCL does not make use of zero-hour contracts.

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

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

The staff turnover is low as can be seen from Table 12, which shows academic leavers by grade and gender for full-time staff. Staff who have left have gone on to positions either in academia elsewhere or in industry, with two female researchers going to lectureships elsewhere, and the other four to positions in industry.

During the same period, an additional two male staff left who were identified as part-time staff, but these individuals were part-time teaching fellows primarily based in industry, and went back to industry or retired.

The department conducts exit interviews, and holds destinations, for all staff leavers.

Table 12. Academic leavers by grade and gender for full-time staff (2012 – 2016).

	2012				2013				2014				2015				2016			
Grade	**M**	**F**	**tot**	**%F**	**M**	**F**	**tot**	**%F**	**M**	**F**	**tot**	**%F**	**M**	**F**	**tot**	**%F**	**M**	**F**	**tot**	**%F**
1	1	1	2	-	0	1	1	-	1	0	1	-	0	0	0	-	1	0	1	-
2	1	1	2	50%	1	0	1	0%	3	0	3	0%	1	3	4	75%	7	3	10	30%
3	1	3	4	75%	2	1	3	33%	2	1	3	33%	3	1	4	25%	1	1	2	50%
4	1	0	1	0%	0	0	0	-	0	0	0	-	1	0	1	0%	0	0	0	-
5	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
6	0	0	0	-	0	0	0	-	1	0	1	0%	1	0	1	0%	1	0	1	0%
	4	**5**	**9**		**3**	**2**	**5**		**7**	**1**	**8**		**6**	**4**	**10**		**10**	**4**	**14**	

(2586 words / 2000 words)

5. SUPPORTING AND ADVANCING WOMEN'S CAREERS

Recommended word count: 7000 words

5.1. Key career transition points: academic staff

(i) Recruitment

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

The number of applications, shortlisted candidates, offers made and accepted by gender for academic staff is given in Table 13, and equivalent for PDRA in Table 14. We have recruited to seven academic posts in the last five years, and filled six, of which four were lectureships and two were professorships (incl. HoD). The lectureships were part of our departmental expansion, whilst the professorships were to replace retired staff.

It is clear from Table 13 that we have a problem in attracting suitably qualified female applicants to fill and/or accept lectureships, and although we have successfully attracted four female teaching fellows, we see this as our biggest gender equality challenge. The following describes the measures we have taken and will continue to adopt / adapt according to continuous review and learning (**action plan 2013**):

- Female representation on all recruitment panels. Three of the panels have had a female Chair. All staff sitting on recruitment selection panels are required to have completed recruitment training.
- The department has moved to a more comprehensive interviewing process that allows the candidates to experience more of the 'feel' of the department and get to meet as many of the staff as possible. For all academic grades, this involves an informal dinner the night before the interview, breakfast the day of the interview, tour of UCL, meeting with students, informal 'afternoon tea' in addition to the formal interview and presentation. In doing this, the candidate has the exclusive attention of the interview panel throughout their visit and should feel more comfortable and connected with their potential colleagues. For female applications, two or all of the existing female staff are involved directly.
- Pay for visits by the whole family for offer holders, also from overseas, to introduce then to London and UCL. We show them around London, including visiting local nurseries etc.
- Reach out to both national and international contacts to advertise vacancies, and arrange Meet the Department events during large international conferences, with significant female departmental representation.

Despite our efforts, we have found it difficult to attract and appoint female staff. We have made offers to female applicants which have been turned down due to the two-body problem or because they considered London too expensive to live. We will continue to make this one of our main action points [**Actions 1.3 and 3.1**].

Action 1.3	Monitor staff appointments and promotion success rates.

Action 3.1	Attract more applications from females to academic positions.

Table 13. Number of applications, shortlisted candidates, offers made and offers accepted by gender for academic staff (2012 - 2016).

		Applications			Shortlisted			Offer			Accepted		
Year	**Title**	**F**	**M**	**%F**	**F**	**M**	**%F**	**F**	**M**	**%F**	**F**	**M**	**%F**
2016	*No posts*	-	-	-	-	-	-	-	-	-	-	-	-
2015	Lecturer in Chemical Engineering	10	55	15%	1	9	10%	0	3	0%	0	2	0%
2014	Lecturer in Chemical Engineering	12	38	24%	1	5	17%	1	1	50 %	0	1	0%
	Lecturer/Senior Lecturer in Chemical Engineering	8	29	22%	2	1	67%	0	1	0%	-	-	-
2013	Professor of Molecular Thermo-dynamics	0	2	0%	0	2	0%	0	1	0%	0	1	0%
	Lecturer in Chemical Engineering	19	77	20%	0	2	0%	0	2	0%	0	2	0%
2012	Ramsay Memorial Professor and Head of Department	1	4	20%	1	4	20%	0	1	0%	0	1	0%
	Lecturer in Chemical Engineering	9	40	18%	0	7	0%	0	3	0%	0	3	0%
Total		59	245	19%	5	30	14%	1	12	8%	0	10	0%

Table 14. PDRA recruitment: number of applications, shortlisted candidates, offers made and offers accepted by gender (2012-2016).

	Application			Shortlisted			Offer			Accepted		
	F	**M**	**%F**	**F**	**M**	**%F**	**F**	**M**	**%F**	**F**	**M**	**%F**
2016	105	290	36%	12	44	27%	2	3	67%	2	8	25%
2015	140	458	31%	25	78	32%	7	12	58%	7	15	47%
2014	58	176	33%	10	28	36%	5	8	63%	5	5	100%
2013	77	217	35%	17	39	44%	2	11	18%	1	9	11%
2012	11	29	38%	8	17	47%	0	4	0%	0	4	0%
Total	391	1170	33%	72	206	35%	16	38	42%	15	41	37%

(ii) Induction

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

On joining the department, the new starter receives a staff handbook with information about the department. The HoD undertakes the induction process in collaboration with the new starter's mentor and the DM. A social gathering is normally organised to welcome the new starter(s). In addition to introducing the operational aspects of the department's running and support, UCL policies on flexible working, maternity and paternity leave etc. are provided. The new starter will already have received a computer user ID and been added to relevant mailing lists etc.

Depending on the experience of the new member of staff, their teaching allocation will typically start at 0.5 FTE and gradually ramp up to a full load over three years. Support on teaching is provided by the DHoD (Education), and on research by the DHoD (Research) throughout the probation period.

All new UCL staff members are required to complete an online gender equality training course as part of their probation; however, the department requires this to be completed during the first week (**action plan 2013**). Departmental staff members are also required to complete an online course on sexual harassment and bullying, normally within the first month. All induction training is monitored by the department with 100% uptake.

The mentor discusses the effectiveness of the induction with the new staff member in their regular meetings and feeds back any concerns to the HoD and DM.

(iii) Promotion

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

Potential candidates for promotion are identified by principal investigators for research only staff (Research Fellow, Senior Research Fellow), and by the HoD for academic staff, following staff appraisals and discussions. SMT also considers the readiness of all staff annually and will encourage staff who have not put themselves forward (**action plan 2013**). The SMT, and a separate promotion group composed of all professorial staff, comment on potential candidates before the HoD puts the candidate forward. At least two of the members of the professorial group, in addition to the HoD, will also provide formal feedback on the application and work with the applicant to prepare the full application.

A few applications have been rejected at the departmental level, but as staff numbers are so low, details have not been included here as individuals could be identified. Of those being put forward, we have 100% success rate over the last five years (Table 15 and Figure 20). For applications that are unsuccessful at the departmental stage, the SMT provides comprehensive feedback, and the HoD provides direction on the route

required to achieve future success, and also assigns one or more departmental mentors to support.

All of our female academic staff have experienced healthy promotional progress with all having been promoted to Professor in recent years.

Table 15. Successful promotions by gender and grade (2012 - 2016)

Grade	Staff category	2012		2013		2014		2015		2016	
		F	M	F	M	F	M	F	M	F	M
2	Research Fellow	0	0	2	0	0	1	0	6	1	3
3	Lecturer, Teaching Fellow, Senior Research Fellow, Senior Teaching Fellow	0	0	0	0	0	1*	0	0	0	0
4	Senior Lecturer, Principal Teaching Fellow, Principal Research Fellow	0	0	0	0	0	1	0	1	0	0
5	Reader	0	0	0	1	0	1	0	0	0	2
6	Professor	0	0	1	1	2	0	0	1	0	0
	Total	**0**	**0**	**3**	**2**	**2**	**4**	**0**	**8**	**1**	**5**

**: Part-time: 0.4 FTE Senior Research Fellow (and 0.4 FTE Teaching Fellow)*

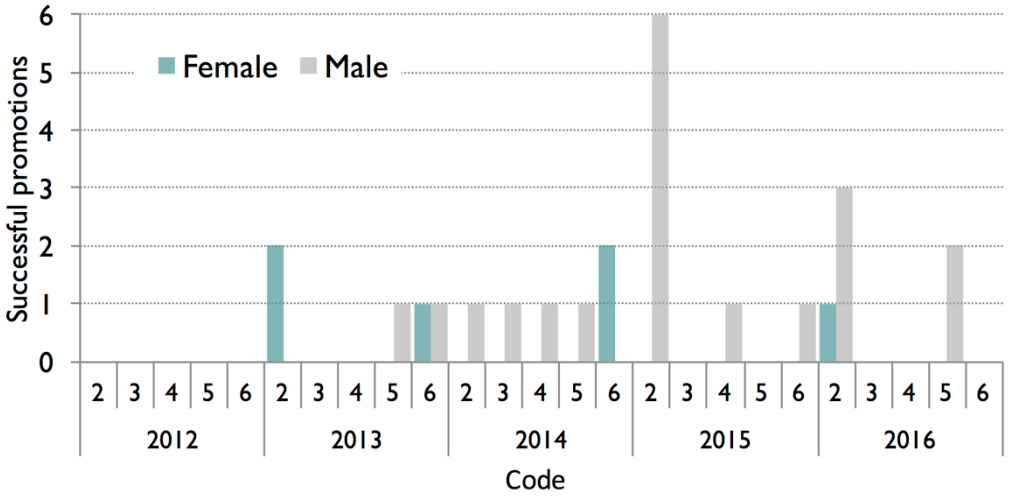


Figure 20. Successful promotions by gender and grade (2012 – 2016).

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

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

All academic staff were submitted to REF for both 2014 and 2008, with the exception of one male who has since retired, but who worked in a teaching-only role. 100% of female staff were therefore entered.

5.2. Key career transition points: professional and support staff

(i) Induction

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

The induction of professional and support staff is similar to that of academic staff and teaching fellows: handbook, training, policy information, introductory tour and meeting colleagues etc., again with 100% uptake. The effectiveness of the induction is similarly monitored.

Particularly important is the introduction to staff in similar roles in other Faculty departments, and the introduction to key departmental staff including academic staff with whom the new starter will work closely. As an example, the DHoD (Education) will have lunch with new Teaching & Learning starters to discuss expectations and ways of collaboration, although is not the line manager. We work hard to maintain the inclusive atmosphere in the department which includes all post holders.

(ii) Promotion

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

The promotion process for professional and support staff is separate to that of academic and research staff. Professional and support staff are supported to apply for more senior posts through training, shadowing and mentoring to apply for more senior posts. Re-grading is very rare as the priority is seen by UCL as the needs of the department rather than the individuals; however, two female PS staff have been regraded in the past two years.

The DM discusses vacancies with other DMs and encourages staff to apply for suitable opportunities. The DM also sends out potential opportunities that have been circulated internally to all professional services staff. Three female PS staff, one female and one male technical staff have been promoted through application to more senior posts.

The department and Faculty encourage secondments opportunities whenever possible, for example the current DM was recruited through secondment and her current maternity cover will hopefully be a secondment as well. This ensures that good staff are retained and supported in their career development.

Feedback from the PS staff focus group indicated that many feel there is no clear promotion route in place for their roles, and feel that in comparison to academic staff, their route is very restricted and involves changing roles to gain a promotion. Unfortunately, there is little the department can do to change this beyond supporting staff to leave.

5.3. Career development: academic staff

(i) Training

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

Training available

UCL expects all UCL staff to undertake at least three learning events[4] a year and these are recorded on a corporate booking record. Both UCL and external training can be included. For staff with management responsibilities, this should include at least one leadership or management development activity.

Mandatory training includes:

- All new staff must undertake training in Equality & Diversity during the probation period (department: during first week).
- All UCL staff on recruitment panels must have received training in fair recruitment, and at least one member should have received disability awareness training.
- All staff undertaking appraisals must have completed appropriate training.
- All staff must undertake annual fire safety training.

Most academic staff are members of professional bodies, such as the Institution of Chemical Engineers (IChemE), who have a CPD requirement built in to their membership. The exact nature of the professional CPD undertaken is based upon the individual member's circumstances, current membership grade and registrations held[5].

In addition to training required by UCL, all departmental staff are, since July 2016, also required to complete online training on Challenging Behaviour, particularly related to harassment & bullying [**Action 5.7**]. This was in response to the Staff Survey 2015 where 90% of male, and 60% of female, departmental staff reported that "*I have witnessed behaviour towards others that I consider to be bullying/harassment in the last two years at UCL*"[6].

Recently, we have also offered a two-hour workshop to all staff on *Where do you draw the line?*, and have contributed to the development of video material for UCL-wide training. The HoD is championing this training and has presented our work to UCL's Leadership Forum.

[4] A learning event is defined as a learning, training or development activity that has been completed via attendance at a workshop, course or conference or via e-learning, a coaching or mentoring session or a team 'away day' or half day etc. of at least 2 hours duration.

[5] http://www.icheme.org/resources/continuing-professional-development.aspx

[6] The survey does not specify if this is witnessed within or outside UCL, and focus groups have indicated staff have included outside in their responses.

Action 5.7	Continue to provide and monitor online training on Challenging Behaviour, in particular in relation to bullying & harassment.

Uptake of training

For all academic staff, training is discussed during annual appraisals, as is the completion and effectiveness of training during the previous period. Areas of training for the coming period are identified to improve performance in the current role or development aimed to equip the reviewee to undertake a broader, different or more senior role.

The uptake of mandatory training for all staff is monitored by the DM, and the completion of annual safety training by the Safety Officer. For members of professional bodies, the CPD is monitored directly by the body.

The uptake of harassment & bullying training to date is below 50% for the online training and lower for the workshop due to the timing in early 2017; hence, another workshop is planned for June 2017 in conjunction with a staff meeting. We intend to make this training mandatory and to monitor compliance through appraisals [**Action 1.4**].

The latest PGR/PDRA survey highlighted a need for better support for LGBTQ students, and as a result we are also planning LGBTQ awareness training via a workshop, again due to be held in summer 2017 [**Action 1.1**].

Action 1.1	Provide and monitor staff training related to LGBTQ.
Action 1.4	Provide and monitor staff training related to bullying & harassment.

(ii) Appraisal/development review

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

Appraisal schemes for staff at all levels

We use annual appraisals to identify achievements, goals and training needs. We monitor and know that 100% of staff undergo appraisal annually (UCL requires biannually). Appraisals are undertaken for academic staff by the HoD, for teaching fellows by the DHoD (Education) and for part-time teaching fellows (two male) by the MSc Programme Director. Appraisals for PDRAs are undertaken by the project PI. All staff undertaking appraisals must have - and have - completed appropriate training (see previous section).

During the review meeting, discussions are recorded based on criteria set by UCL policy: (i) significant achievements since the last review; (ii) aims and objectives not achieved,

and any factors that have affected the achievement of objectives and, if appropriate, actions agreed to reduce the impact of such factors in the future; (iii) objectives agreed for the coming review period; and (iv) any actions that may be required within the department (or elsewhere) to enable aims and objectives to be achieved, including any additional reasonable adjustments. In addition, since 2015 we have also included a section on contribution towards Equality & Diversity within the department and beyond to share best practice and understanding of these issues [**Action 5.8**].

Action 5.8	Continue to ensure, via annual appraisals, that staff members contribute towards Equality & Diversity within the department and beyond.

Staff feedback

Our staff survey results show that our appraisal process can still be improved (Figure 21), although significant improvement has been made since the survey in 2011, primarily due to the change from a bi-annual to an annual appraisal cycle [**Action 4.1**] and with a new HoD.

Female staff are generally more satisfied with the process than male staff. Note that we had only three members of female staff in 2011, and so we are not presenting this data as individuals could be identified.

Action 4.1	Continue to ensure that 100% of staff undergo appraisal annually.

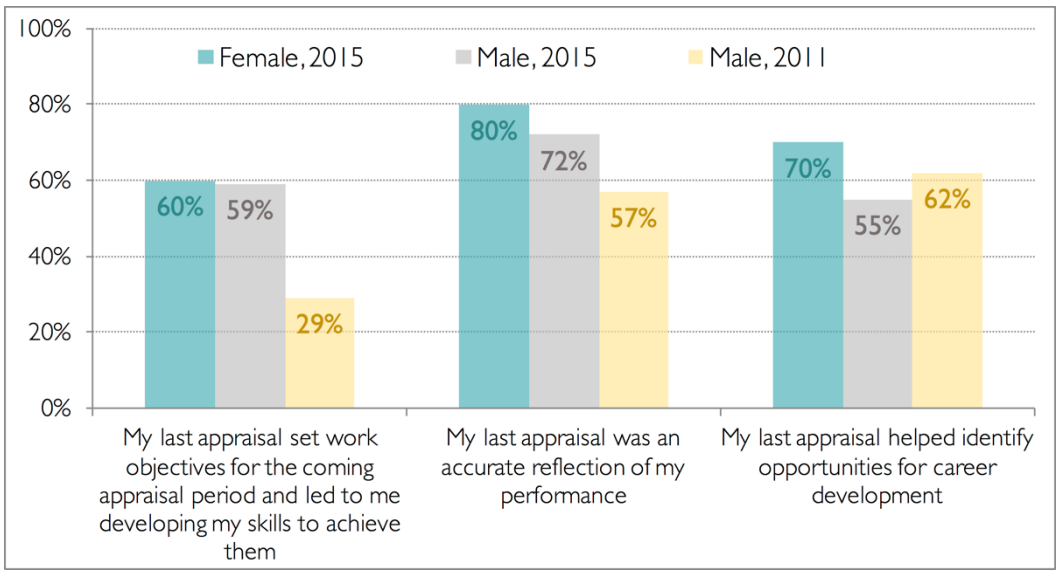


Figure 21. Academic staff satisfaction with appraisal process (Staff survey 2011 (76% response rate) & 2015 (77% response rate)).

(iii) Support given to academic staff for career progression

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

Postdoctoral researchers

Postdoctoral researchers are mainly supported by their project supervisors, who undertake their annual appraisals. Through discussions, we identify which direction, in academic, industrial or research institutions, they wish to pursue and then support them accordingly, which may involve bringing in other academic staff to support.

For an academic direction, this involves support in preparing fellowship applications for PGR or PDRA researchers, involvement in proposal writing by recognising them as Research Co-investigators, and/or support in developing applications for lectureships. For instance, during the last Athena SWAN period, two female PDRAs continued on to lectureships in the UK (Ana Sobrido, Queen Mary University) or in Europe (Lilian de Martin, Chalmers, Sweden). One male PDRA was mentored and successful in obtaining a lectureship within the department (Federico Galvanin, see Case Studies). For researchers more interested in an industrial career, we offer departmental support primarily via our student activities (see 5.3 iv).

The number of PDRAs has doubled in the last Athena SWAN period, from 22 in 2013 to 42 in 2017, and we feel a more structured support programme is now needed. We have identified through PDRA focus groups a need for support beyond the primary supervisor, and will develop an independent mentorship programme for all PDRAs, primarily to support career development [**Action 4.2**]. Also identified is a desire to gain teaching experience for those interested in an academic career. Although PDRAs are already encouraged and supported to get involved with teaching, the opportunities have not been advertised widely enough and some supervisors have been reluctant to release time [**Action 4.3**].

PDRA focus group 2016

- *Career advice depends on the supervisor and may therefore be inconsistent.*
- *PDRAs should be supported in taking up teaching opportunities.*

Action 4.2	Establish mentors for PDRAs beyond primary supervisor.
Action 4.3	Encourage and support PDRAs to get involved with teaching activities.

Academic staff and teaching fellows

Applications for promotion to the next grade are considered annually by UCL, with the exception of Senior Teaching Fellow which can be submitted at any time. Criteria for the different levels are available on the HR website and are discussed during staff meetings, mentor meetings and during appraisals. Promotion is judged on contributions to research, teaching, knowledge transfer/exchange and enabling, although promotion, including to professor, is now also possible based on a predominantly teaching-based

route and one female applicant was successful through this route in 2014 (Sorensen). Career breaks are taken into account.

We identify potential candidates for promotion through SMT review of all staff, annual appraisals, either by the HoD for academic staff or the DHoD (Education) for teaching fellows, who also support the candidates though the process, although self-nomination is also possible. In addition, senior staff also support candidates for promotion, either directly as mentors for senior lecturer or reader promotions, or as research group colleagues.

The SMT, and a professorial promotion group, both comment on potential candidates before the candidate is put forward (see 5.1 (iii)). To allow sufficient time for review and support to build as strong a case as possible, the promotion process therefore starts in the summer, even though the application deadline is in October/November.

We have identified through staff focus groups [**Action 1.5**] that there is a need also for mentors for professorial applications, and will therefore establish this for the next promotion session [**Action 4.4**].

Academic staff focus group 2016

- *There is very good support for promotion applications, particularly from the Head of Department who is very supportive.*
- *The promotion process is not based on metrics, but on a balanced, flexible application process.*

Action 1.5	Continue to hold focus groups for all staff and student groups annually.
Action 4.4	Establish mentors for professorial promotion candidates.

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

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

Undergraduate students

We have a formalised Personal Tutor scheme for all undergraduate students. All academic staff and teaching fellows contribute and look after a proportion of the students whom they follow though the degree, and pastoral care is included in the staff work allocation. The personal tutor works with the students both individually and in groups and also provides support on postgraduate degrees and industrial careers. We also have a departmental Advisor to Female Students and a departmental Mental Health Advisor.

The UCL Student Society of Women Engineers, which is supported by the department, organises regular meetings, seminars and social events where female UGs, PGRs and PDRAs can meet, share experiences and interact with female academics (Figure 22).

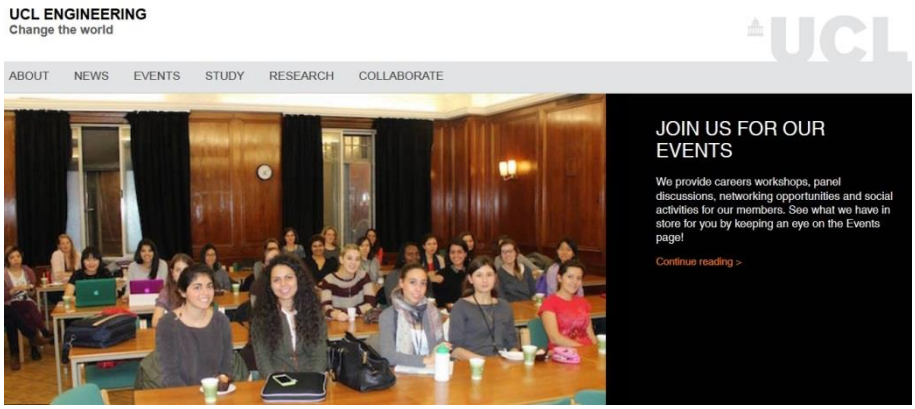


Figure 22. UCL Student Society of Women Engineers website.

Postgraduate students

PGRs are supported by a primary and secondary supervisor, as well as the departmental Postgraduate Tutor, the departmental Advisor to Female Students and the departmental Mental Health Advisor.

The HoD instigated the establishment of a postgraduate student society in early 2016, and we now have a very strong society, CheERS (Figure 23), which regularly organise events either alone, together with the department or with our Industrial Advisory Board (IAB), for instance, during poster sessions held in the afternoon of each six-monthly meeting, followed by career advice sessions and prize giving events for poster awards (Figure 24).

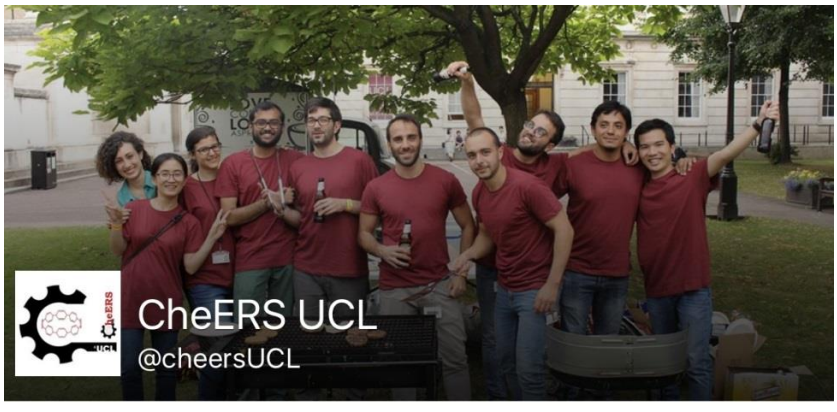


Figure 23. Facebook page of postgraduate student society CheERS.

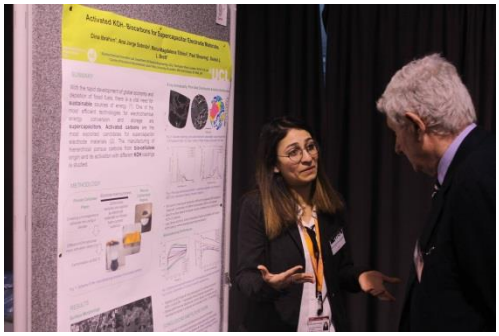



Figure 24. Postgraduate researchers interacting with our Industrial Advisory Board (IAB).

We hold lunchtime seminars monthly for PGR students with speakers in their second year of studies, as well as a poster day for either first year researchers or final year researchers in conjunction with the IAB meetings.

The department provides an annual training fund for all PGR/PDRAs of £1,500 to ensure adequate provision for travel to conferences, where students can build their networks and be inspired to stay in the discipline.

Focus groups for PhD students and PDRAs in 2015/16 identified great uncertainty around career progression and what is involved in an academic or industrial role for someone with a PhD. In addition, there was little awareness of what the application procedure for such roles entails. In response, the department established two annual full-day events, one held in the autumn entitled "*From PhD/PDRA into academia – what are the next steps?*" (Figure 25), and one held in the spring entitled "*From PhD/PDRA into industry – what are the next steps?"* (Figure 26). The events include a panel discussion with both external and internal speakers talking about their journeys into academia or industry, a session on networking run by IChemE and information about recruitment procedures either within academia or different industries.

From 2016/17, both events have been made available also to researchers from other institutions as part of our ***Beacon*** activities in collaboration with HCEUK and IChemE, and so far we have welcomed delegates from Imperial College London, Manchester University and Newcastle University. We will continue to develop these career events and will aim to capture some of the talks for our Athena SWAN website. We will also provide more places to external delegates to allow PGRs and researchers to establish networks with colleagues in other institutions [**Action 7.2**].

From PhD/Postdoc into academic – what are the next steps? Delegate feedback 2016
Thank you once again for organizing such an interactive and informative event.

(External delegate)

Action 7.2	Continue "From PhD/Postdoc into academia/industry events" as part of ***Beacon*** activities.

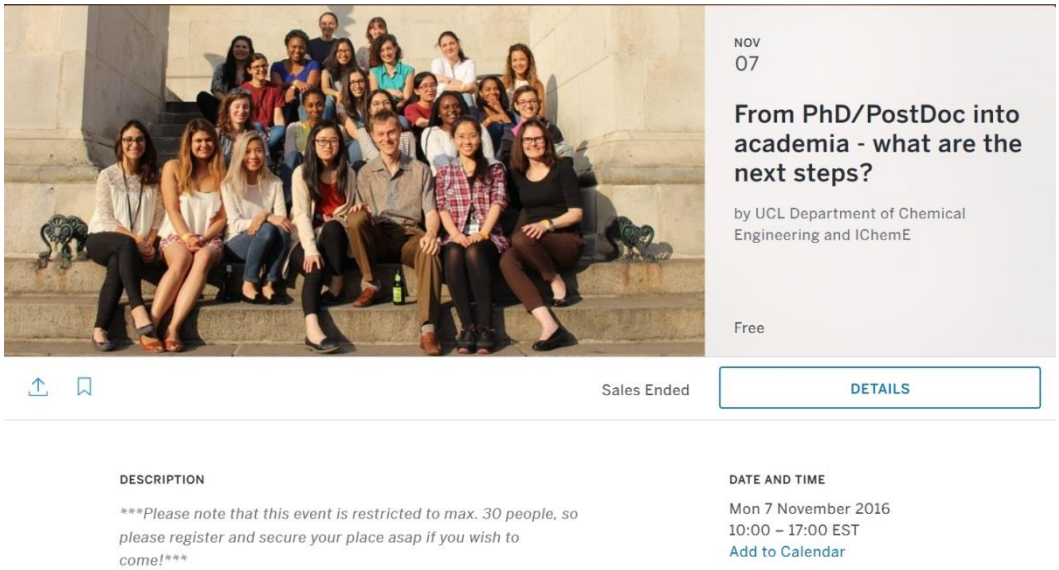


Figure 25. Eventbrite invite for our PhD/PDRA into academia event (November 2016).

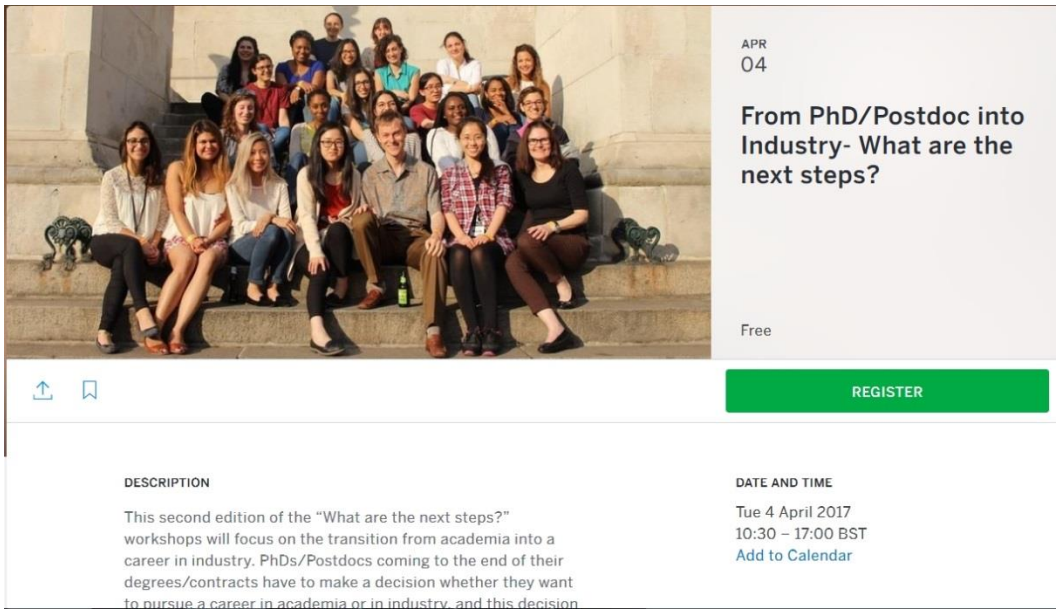


Figure 26. Eventbrite invite for our PhD/PDRA into industry event (April 2017).

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

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

Support in applying for funding

All academic staff are expected to actively apply for research grant funding from external organisations such as EPSRC, EU, Leverhulme Trust etc. Support is primarily provided by the DHoD (Research) and the departmental Project Manager. For staff on probation, the mentor and the HoD will also play an active role in supporting the new

staff member. UCL training is available for preparation of research proposals and the Faculty also actively supports researchers in preparing grant applications.

All teaching fellows are expected to actively apply for teaching grant funding either from UCL or externally. Support is provided by the DHoD (Education), who is also their line manager.

PDRAs are actively encouraged and supported by staff in preparing fellowship applications. One successful candidate has recently gone on to an academic post elsewhere in the UK.

Support to unsuccessful applicants

The department and Faculty offer support to those who were unsuccessful in obtaining funding. For instance, departmental funding is available for a few PhD studentships every year where the supervisor has been unsuccessful in obtaining external funding, but where the research is deemed of strategic importance, either for the research direction or for the staff member. New staff members have priority for this funding.

5.4. Career development: professional and support staff

(i) Training

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

UCL's and departmental expectation for training also apply to professional and support staff, including mandatory training during induction and probation, as well as annual training events. The uptake of mandatory training is 100%, and is monitored by UCL centrally.

Training opportunities are emailed to all PS or technical staff when it becomes available by HoD, DM or line manager. Safety training is particularly important to our department for technical support staff, and is monitored regularly and assessed through risk assessments. Training needs are discussed and completion monitored during probation and appraisal meetings, and the effectiveness of the training is discussed.

(ii) Appraisal/development review

Describe current appraisal/development review schemes for professional and support staff, at all levels, and provide data on uptake by gender. Provide details of any appraisal/development review training offered, and the uptake of this, as well as staff feedback about the appraisal/development review process. Support given to professional and support staff for career progression.

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

As for academic staff, departmental guidance of the UCL appraisal system is available on the departmental staff intranet and all staff are regularly reminded during staff meetings (which involve all staff groups). Appraisal meetings are monitored and reminders sent out every year. The department has significantly increased its uptake in the past year to 100% completion rate for all staff groups (**action plan 2013**).

Astrea is UCL's network for women in Professional Services, and currently has over 500 members. The DM (currently on maternity leave) encouraged the Senior Finance Administrator to become the treasurer of this network and actively encourages all female staff in the team to take part in their activities, not just to develop their roles and for information back to the department, but also for potential secondment or promotion opportunities.

Technical support staff interact with colleagues in the other engineering departments to some extent, but as their individual roles are very different internally, they often do not interact as much as desired according to the latest Technical support staff focus group and would like to hold more formal group meetings [**Action 4.5**].

Action 4.5	Introduce more regular formal group meetings for technical support staff.

5.5. Flexible working and managing career breaks

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

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

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

The department ensures that all staff, professional and support staff and academic staff, are aware of UCL policies for maternity leave though information in the staff handbook and through induction, mentoring and appraisal meetings [**Action 6.1**].

We review the working conditions of pregnant staff members, supported by the Safety Officer, as soon as we are made aware of the pregnancy to ensure the working conditions are safe as some of our work involves hazards such as chemicals or radiation.

We also actively encourage flexible working or working from home to reduce stress of commuting. All three female academic staff have two children each and are more than happy to advice on how to manage both pregnancy and work-life balance with children.

Action 6.1	Ensure staff know the opportunities and support available to them when they need to take maternity or paternity leave.

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

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

Cover is always provided for maternity leave for all staff, including the employment of temporary staff. The cover is normally in place before the staff member goes on leave, as well as in place for a few weeks following the return, to ensure a smooth hand-over.

We use Keep-in-touch (KIT) days, up to 10 days with each part day counted as a full day, to ensure we stay in touch during the leave, but the number of days taken is at the discretion of the staff member. The staff member also decides on the level of email contact during the leave, ranging from no emails to all emails forwarded. UCL policy states this must be agreed by the line manager, but departmental policy is that the staff member will inevitably decide, and regardless of staff role.

No cover is usually provided for PDRA cover as research work is usually held in *stasis* unless urgent, but KIT days still apply to keep in touch with the research group.

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

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

Staff members returning from maternity leave are given one term off teaching for academic staff, or a reduced work load for at least a term for other staff categories. Maternity cover staff are kept in post for a couple of weeks after the return to ensure a smooth handover and this is funded by the department. Flexible working is also actively encouraged to ease the transition. Female academic staff also support by providing advice and by acting as mentors [**Action 6.2**].

Returning from maternity leave

When I returned, my maternity leave cover helped in the transition process, and provided updates of the student groups that I was responsible for advising.

Action 6.2	Continue to provide support to women returning from maternity leave and monitor evolving needs.

(iv) Maternity return rate

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

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

Four members of staff took maternity leave in the period 2012-2016, of which one is technical staff (see case studies) and one is a teaching fellow, and both are still working in the department.

Two postdoctoral researchers took maternity leave, returned to their posts following their leave, and have since moved on to posts in industry in their home countries after their contracts came to an end four and ten months after their return, respectively.

The return rate is therefore 100%, and no staff have had contracts not renewed whilst on maternity leave.

Table 16. Maternity leave and uptake for all staff.

Year	Number			Return
	Academic/ teaching fellow		Professional Services/ technical staff	
	Number	Grade		
2012	0	-	1*	Yes
2013	0	-	0	-
2014	1	2	0	Yes
2015	1	2	0	Yes
	1	3	0	Yes
2016	0	-	0	-

**: see case studies*

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

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

UCL offers four weeks paid paternity leave as well as shared parental leave. The department strongly supports and encourages fathers to take paternity leave and this is always granted (see case studies). In total, four fathers have taken paternity leave during the period (Table 17), with another two (staff category 3) so far in 2017, and this is 100% uptake.

Information about paternity leave is included in the staff handbook and information about all UCL policies is included in regular staff email bulletins, as well as discussed during appraisals and during mentor meetings.

Table 17. Paternity leave uptake for all staff.

Year	Number		
	Academic / teaching fellow		Professional Services/ technical staff
	Number	Category	
2012	0	-	0
2013	0	-	0
2014	0	-	0
2015	1	6	0
2016	2*	3	1

**: see case studies*

(vi) Flexible working

Provide information on the flexible working arrangements available.

All members of academic and research staff make extensive use of flexible working and work from home on a regular basis, as do professional services and support staff when this can be accommodated. The arrangements for this are informal and are flexible as long as core commitments are covered and their whereabouts is known. No staff have been refused permission to work flexibly. The staff survey in both 2011 and 2015 reported that 90% of all staff felt "*As long as I get my work done, I have a choice deciding how I do my work*".

Both the staff survey 2015 and the staff focus groups reported that staff felt under pressure to work extended hours, with only 44% reporting "*I am able to strike the right balance between my work and home life*". It is believed that this is partly due to the universal increase in academic staff pressure, but also due to the very rapid expansion of both research and teaching activities within the department. We are therefore committed to addressing this demand on staff time going forward [**Actions 5.1 and 5.2**].

Action 5.1	Address work-life balance for all staff, but in particular, academic staff.
Action 5.2	Continue to review Working Hours Allocation Model (WHAM) and Staff Duties Model (SDM) annually.

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

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

So far, no staff have gone part-time following a career break, but should anyone do so, the department would provide full support in allowing a smooth transition back to a full-time role in due course if this was requested, and would provide bridge funding to ensure this can be accommodated.

5.6. Organisation and culture

(i) Outreach activities

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

Following feedback on our last **action plan**, the plan was revised and the department is now committed to delivering a broad, exciting and dynamic outreach programme. We have few outreach activities that are aimed only at female students, but instead try to ensure an even gender representation at all outreach events by insisting on 50% female participations for all events that have either external registration, e.g. Headstart, or that are overseen by the Faculty. The participant uptake is near 50% for all activities, which is very high for an engineering discipline.

The department is aware and actively promotes the UCL Widening Participation agenda and considers delivery of this agenda as an essential part of the academic job role. This is expressly stated as a requirement for promotion, and outreach activities are included in the work allocation. All academic or teaching fellow staff therefore take part in outreach events, either running the events or by giving lectures or demonstrations. The two large outreach events, two week-long summer schools, are mainly run by teaching fellows, of which 50% are female. Many of our PGRs and PDRAs organise or take part in events and undergraduate students are involved in departmental open days.

Our main outreach events are (but are not limited to and not including open days):

- **Headstart** – four-day residential summer school organised with the EDT[7]. Runs in June with 40 Year 12 students.
- **Chemical Engineering Summer School**[8] – a week-long residential summer school organised with UCL Widening Participation. Runs in August for 35 Year 12 students.
- **Summer Challenge**[9] - a week programme with a weekly two-hour afternoon session at UCL organised with UCL Widening Participations. Runs in June/July with 16 Year 12 students.
- **Young Researchers** – a departmental programme which allows promising and high achieving students to spend up to two weeks doing research within the department. Runs in June/July for up to five Year 12 or Year 13 students.
- **In2Science**[10] – the department regularly hosts students on behalf of In2Science who spend several weeks working together with our research teams.
- **Gold Crest award projects**[11] – the department regularly hosts students working towards their awards and who spend around two weeks working within the department, mainly in June and July.
- **"Engineers Save Lives" UCL - Royal Institution Masterclasses**[12] – the department runs a half-day event on behalf of the Faculty for up to 40 Year 9 students.
- **National Women in Engineering Day** – the department, together with the Faculty, celebrates the day with a programme for KS3-4 girls.

[7] http://www.etrust.org.uk/chemical-engineering-university-college-london

[8] http://www.ucl.ac.uk/prospective-students/widening-participation/activities/summer-schools

[9] http://www.ucl.ac.uk/prospective-students/widening-participation/activities/summer-challenge

[10] http://in2scienceuk.org/

[11] http://www.crestawards.org/run-crest-awards/crest-gold/

[12] http://www.engineering.ucl.ac.uk/news/young-londoners-learn-engineers-save-lives-masterclasses-royal-institution-ucl/

Figure 27. Examples of departmental outreach events.

Feedback from outreach participants

- *Realised a lot more engineers care about helping people and helping the world rather than doing it just for salaries.*
- *Less male dominated than I thought it would be, taken away any insecurities I had previously.*

(ii) Visibility of role models

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

Departmental role models

The department has three highly successful female professors who are excellent role models for both staff, researchers and students, include as Deputy Head of Department (Sorensen) and as Academic Director of UCL's proposed UCL East Campus (Lettieri). The department now also has four female teaching fellows who work closely with UGs through the IEP, who are also excellent role models for students, as well as for outreach delegates.

For both UCL and departmental open days, we ensure close to 50% female staff involvement, but without overloading individuals. We also involve many PGRs, PDRAs and UGs as helpers, and ensure that we have at least 50% female helpers, but also aim to balance other equality aspects such as ethnicity, particularly related to our recent drop in white female UK students (see 4.1) [**Action 2.11**].

Speakers and chairpersons in seminars

The department aims to have 50% female speakers for departmental seminars, as set out in our previous action plan, although, because of a few unexpected last minute drop-outs, did not achieve this in 2016 [**Action 5.3**]. The PhD seminars are hosted by the PGRs themselves, and may be both male and female.

Publicity material

Most of our publicity material is now available only in electronic form, either on our own departmental website (Figure 28) or on the UCL website for prospective students. For our own website, we aim to have at least 50% female representation in our images, with a good balance also of ethnicities [**Action 5.4**]. We believe this was a contributing factor in attracting such a high number of PGT students for instance, as they are less likely to visit the department in person (see 4.1).

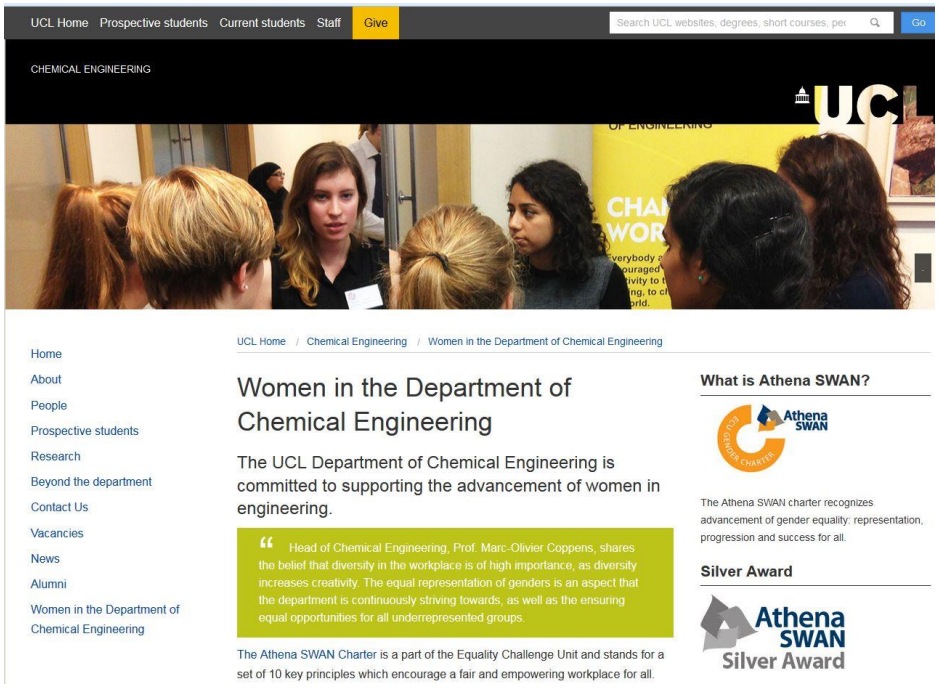


Figure 28. Departmental Athena SWAN website.

Action 2.11	Ensure 50% female staff, researchers and students during open days.
Action 5.3	Continue 50% female speakers for departmental seminars.
Action 5.4	Continue 50% female representation on departmental website.

(iii) Beacon activity

Demonstrate how the department is a beacon of achievement, including how the department promotes good practice internally and externally to the wider community.

Our Beacon activities are primarily focussed around supporting the wider UK chemical engineering community and we work extensively with the Heads of Chemical Engineering UK (HCEUK) and the IChemE, providing leadership on such activities across all 26 UK chemical engineering departments. We were the first chemical engineering department, together with that of Imperial College London, to achieve a Silver Athena

SWAN award in 2009; a further seven departments have since followed. Another seven departments have Bronze awards, but ten departments still have no award. We have actively supported two departments in preparing their applications (Manchester and Newcastle) and are currently supporting another (Surrey).

Through this work, we have identified a number of common issues that we are all struggling with, and as a result we instigated in 2015, and still lead, a half-day workshop at the end of the annual ChemEngDayUK conferences (Figure 29). The 2017 workshop was also attended by the IChemE President. ChemEngDayUK is a two day conference, organised by IChemE and HCEUK, attracting many UK academic staff but also a large number of PGR and PDRA presenters, and this provides an ideal opportunity for sharing best practice. The focus of our workshops is to provide support for departments working towards a Bronze or a Silver award, to provide a network of support for female PDRAs and PGR students who are considering an academic career, and to coordinate activities across the UK chemical engineering community. Departmental academic staff members, teaching fellows and PGR/PDRAs have all helped support the workshops, in addition to colleagues from Manchester and Newcastle in 2016, and will continue to do so [**Action 7.3**].

We are currently working with IChemE in setting up a one-day seminar for SAT members, which will be hosted by IChemE in October/November 2017, and which will focus on sharing examples of both successful and unsuccessful actions and advice on preparing applications [**Action 7.4**]. We are particularly hoping to support the remaining ten departments who currently do not hold an award, and to gradually move as many as possible towards Silver awards.

Our two annual events for PDRAs and PGRs ('*From PhD/PDRA into academia – what are the next steps?*' and '*… into industry …*') are now open to delegates from all UK departments, and so far we have had delegates from several (see 5.3 (iv)) but will, again together with IChemE who are supporting the events, advertise more widely in the hope of attracting delegates also from non-Athena SWAN award holding departments.

As both the PGR/PDRA events and the ChemEngDayUK workshops are run by academic staff, teaching fellows and both PGRs and PDRAs, all together, these ***Beacon*** activities have also helped support the Equality & Diversity work within the department as we all aim to be examples of best practice (**action plan 2013**). We will continue to involve as many people as we can, from various staff groups, in these events [**Action 7.5**].

Feedback from ChemEngDayUK 2017 session

Thanks for running a great session on Tuesday.

Jonathan Seville, IChemE President

Action 7.3	Continue to run ChemEngDayUK workshops in collaboration with HCEUK and IChemE.
Action 7.4	Organise and run one-day seminars with IChemE for SAT members.
Action 7.5	Continue to involve a cross-section of departmental staff and students directly in ***Beacon*** activities.

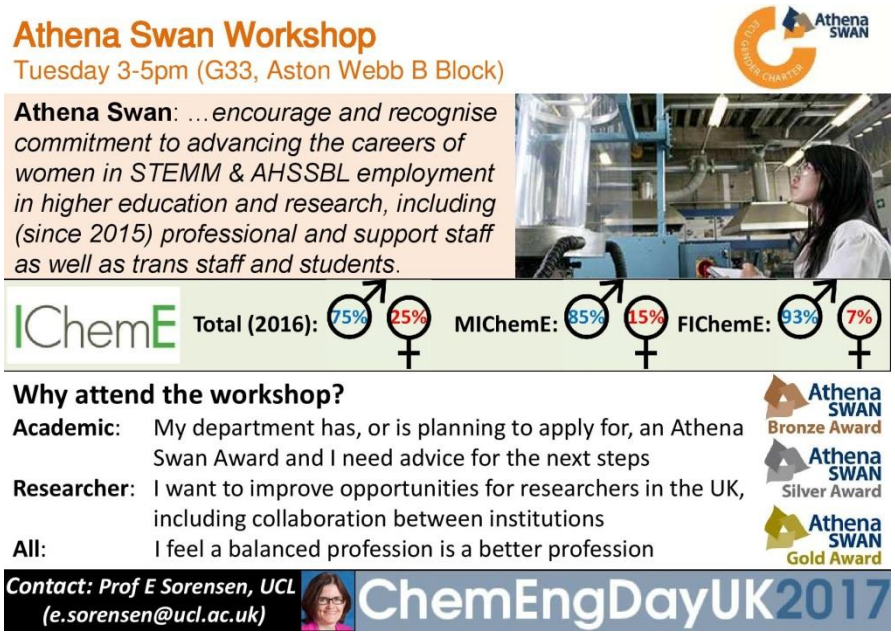


Figure 29. Athena SWAN session during ChemEngDayUK 2017 organised and run on behalf of HCEUK and IChemE.

(iv) Culture

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

It is well-accepted, as documented both by our staff surveys and focus groups, that the department is a friendly and supportive place to work. The relatively small size of the department, and the diversity of the staff and students, is believed to be a significant factor in this regard.

The department's research activities are split into six main areas and the staff within each area act as informal advisors for each other, both in terms of research and teaching. This informal mentoring, often on a day-to-day basis, is part of the departmental culture, is particularly efficient and contributes to a friendly and supportive environment. The support also extends to postgraduate students as the research area staff teams take collective responsibility for all the students within their area. This is also done to ensure that female PGR/PDRAs have a female role model even if their supervisors are male.

Staff work very hard in the department, and whilst members of staff are not normally expected to be available outside normal College working hours, most academic staff work well beyond their contract hours on a regular basis as reported by the staff survey 2015 as only 44% report "*I am able to strike the right balance between my work and home life"* [**Action 5.1**].

The language used, both formally and informally, is consciously respectful in terms of gender, age, disability, race, sexuality and religion. All staff are on first name terms and

there are no perceived boundaries between staff on different grades or between professional services, academic and technical roles.

There is a very child positive culture, and staff often bring their children to visit or to stay for a few hours if the other parent is busy, so there is often child laughter heard throughout the corridors which is welcomed by all and which creates a nice distraction. (Note that no children are allowed into laboratories, and they are supervised at all times.) New-born visits are a good excuse for cakes or celebratory drinks.

Inclusive social engagement occurs between staff, and between staff and students, as appropriate, e.g. via student society events through the year (both UG and PGT/PGR), celebration parties for major project submissions, coffee events following departmental staff meetings, celebrations of major achievements including PhD completions etc.

Staff survey 2015
My work gives me a sense of personal accomplishment (86% male, 100% female)

Action 5.1	Address work-life balance for all staff, but in particular, academic staff.

(v) Timing of departmental meetings and social gatherings

Describe the consideration given to those with caring responsibilities and part-time staff when scheduling departmental meetings and social gatherings.

Departmental meetings are predominantly scheduled in the early afternoon, between noon and 4pm. If meetings overrun, members of staff doing school runs are excused if necessary.

Departmental seminars are arranged well in advance and typically in the early afternoon following lunch.

The timetabling of teaching activities has in the past always taken into account nursery and school drop offs/pick-ups, though with the introduction of a new Common Timetable within College, this may no longer be possible. The Action Plan will be used to consider and feed into the IEP formulation to take into account flexible working from the perspective of the department [**Action 6.3**].

The department has two annual evening social gatherings for staff; one at Christmas, attended by past and present staff and friends of the department within College, and another which is attended by past and present students and staff. These events are organised well in advance so that staff can make necessary caring arrangements.

The increase in the number of research activity and UG intake inevitably means that staff have increasing stress on their time. Effective scheduling and running of meetings is a priority. Wherever possible, meetings are arranged with sufficient notice, lunch time meetings are avoided and meetings are kept to time. No undue pressure is put on staff that they must attend meetings. Sometimes last-minute changes to schedules are

unavoidable, but we are progressively using electronic diaries that make schedule changes easier to manage. For research meetings, online meeting tools are increasingly used (e.g. Skype), allowing staff to work from home or when travelling.

Action 6.3	Continue to consider and feed into the IEP formulation to take into account flexible working from the perspective of the department.

(vi) HR policies

Describe how the department monitors the consistency in application of HR policies for equality, dignity at work, bullying, harassment, grievance and disciplinary processes. Describe actions taken to address any identified differences between policy and practice. Comment on how the department ensures staff with management responsibilities are kept informed and updated on HR polices.

Advice on HR policies is provided by the DM but all staff are expected to be aware of, and follow, all current UCL policies affecting their work and behaviour. Training is provided for all new staff on Equality & Diversity, harassment & bullying and safety during induction. Department wide training on sexual harassment and bullying for all staff has started and will be completed by summer 2017 [**Actions 1.4 and 5.7**]. Completion of training is monitored by the DM, Safety Officer and HoD.

Changes to policies are communicated to all staff via weekly newsletters [**Action 5.6**], with major changes discussed in staff meetings, sometimes with HR speakers brought in. Staff with management responsibilities are kept informed of key management policies either in person by the DA, or via email to all staff for minor policy changes. Staff members involved with recruitment are made aware of the appropriate policies when they are appointed and are all required to undergo training.

In addition to monitoring by the DM, staff, researchers and students are actively encouraged to come forward with concerns if policies are not followed, and do so. Concerns are always treated in confidence, and all matters have so far been resolved through informal and confidential discussion with the affected parties. Examples are PDRA supervisors insisting on early evening meetings affecting work-life balance, line managers not giving all staff equal responsibilities affecting equal opportunities, safety glasses not worn in laboratories affecting safety, oral presentations scheduled too close to the Sabbath for Jewish students affecting equal opportunities etc.

Action 1.4	Provide and monitor staff training related to bullying & harassment.
Action 5.6	Continue to report news and to recognise contributions across a broad range of activities through newsletters.
Action 5.7	Continue to provide and monitor online training on Challenging Behaviour, in particular in relation to bullying & harassment.

(vii) Workload model

Describe any workload allocation model in place and what it includes. Comment on ways in which the model is monitored for gender bias and whether it is taken into account at appraisal/development review and in promotion criteria. Comment on the rotation of responsibilities and if staff consider the model to be transparent and fair.

The departmental workload allocation takes into account individual contributions over time to UCL Expectations (teaching, research, enabling, knowledge transfer), personal circumstances, development needs, for both academic staff and teaching fellows. A spreadsheet Work Hours Allocation Model (WHAM) is used to inform management judgements on teaching allocation decisions, which normally follow discussions with individuals during appraisals. The spreadsheet, including all details and weighting factors, are circulated to all and feedback is invited and discussed in staff meetings to ensure the model is transparent and fair (**action plan 2013**). Our staff survey 2015 reports that 72% of men and 100% of women feel that "*My manager/academic leader fosters two-way communication within the team*".

The WHAM is used in conjunction with a related Staff Duties Model (SDM) spreadsheet used to inform judgements on administrative and enabling roles such as committee membership, tutor roles etc. (We have tried to combine the two models, but found it too complex and difficult to maintain and understand, and have therefore gone back to separate models.) The WHAM and SDM are reviewed and revised annually by the HoD, DHoD (Education) and DM based on staff feedback [**Action 5.2**].

Given the miriad of activities undertaken by staff, the freedom allowed for the individual interpretation of roles and tasks, and the absence of a time sheet management culture, the models are only expected to be indicative rather than exact.

There is limited rotation of teaching duties as preferred by all staff, and any changes are always discussed and agreed with staff well in advance. Teaching Fellows work very closely with academic staff, and they are responsible for the coordination of all project-based learning across the programmes. The teaching fellows are considered an integral part of the department. The DHoD (Education) has oversight of all modules and programmes and ensures consistency across all cohorts, providing support, particularly for young staff.

Staff duties and other responsibilities, including committee memberships, are generally rotated annually, primarily to enable development opportunities for younger staff and to ensure they have a good understanding of the operation of the department (**action plan 2013**). Key tutor roles are typically 3-5 year terms. All departmental responsibilities are discussed during appraisals and are considered as part of the promotion process. Staff are invited to make requests for which roles they are interested in annually, and such requests will be followed as far as possible (**action plan 2013**).

Staff survey 2015
"My manager/academic leader fosters two-way communication within the team". (72% male, 100% female)

Action 5.2	Continue to review Working Hours Allocation Model (WHAM) and Staff Duties Model (SDM) annually.

(viii) Representation of men and women on committees

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

We have a variety of committees, with the current memberships given in Table 18. Overall management of the department is the responsibility of the SMT, whilst teaching related matters are determined by the DTC.

Committee membership is considered annually, and is based on personal preferences, overall work load and development opportunities. It should be noted that of our female academic staff (three), one is currently seconded 90% to UCL (Lettieri), whilst another serves on a number of departmental committees *ex officio* (Sorensen). To avoid committee overload for female staff, we have a number of committees currently with no female representation from staff; however, the Research Degrees Committee and the Safety Committee have female PGR/PDRA members.

We monitor committee membership carefully to ensure decision-making is fair and transparent and that membership reflects our distribution in terms of gender, seniority and role [**Action 5.5**].

Action 5.5	Monitor committee membership and mitigate against committee overload.

Table 18. Departmental committee membership by gender for academic staff (Acad), teaching fellows, technical staff or professional services staff (Other) (April 2017).

Committee	Male		Female		Total	% Female
	Acad.	Other	Acad.	Other		
Senior Management Team (SMT)	3		1[DHoD]	1[DM]	5	40%
Departmental Teaching Committee (DTC)*	4		1[DHoD]	1[TF]	6	33%
Staff-Student Consultative Com.(SSCC)*	2	1[TF]	1[DHoD]		4	25%
Research Degrees Committee	5				5	0%
Equality & Diversity Committee	4		1[DHoD]	3[DM,TF,tech.]	8	50%
Research Committee	6				6	0%
Safety Committee	5			1[tech.]	6	17%
Publicity & Recruitment Committee	4		1		5	0%
Computing Committee	4				4	0%

**: Required by UCL*
***: Female chair*

(ix) Participation on influential external committees

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

All academic staff are encouraged and expected to participate in influential committees at Faculty or UCL level and beyond depending on their experience and grade. Opportunities for such involvement are discussed during appraisals and during staff and mentor meetings.

The external engagement of our female academic staff is shown in Table 19 which clearly shows that all three are highly influential at an institutional, national and international level.

(7036 words / 7000 words)

Table 19. Membership of external committees and other external activities for departmental female academic staff.

	**Professor Pangiota Angeli** – Chair, UCL Nuclear Centre (2015-present) – Member of the international peer review panel of the Norwegian Research Council PETROMAKS (2010-present) – Member of the international peer review panel of the Swedish Research Council for Mechanical Engineering (2016-present) – Co-chair of the UK Fluids network special interest group on multiphase flows (2017-present)
	**Professor Paola Lettieri** – Academic Director, UCL East Campus (2016-present) – Chair, UCL East Steering Group (2016-present) – Chair, UCL East Programme Delivery Group (2016-present) – Vice Dean (Strategic Projects) | Faculty of Engineering Sciences (2015 – present) – Board Member on the ECI Fluidization International Committee (2013-present) – Chair (2016-2018), Deputy Chair (2013-2015), Treasurer (2006-2010), Committee Member (2002-present), IChemE Particle Technology Special Interest Group – Chair (2012-2016) and Committee member (2010-present) IChemE Publications Medals – International Expert Group on LCA for Waste Management (2008-present) – Editorial Board Member of the Journal of Computational Multiphase Flows (2008-present)
	**Professor Eva Sorensen (DHoD (Education))** – Member of EFCE Executive Board (2010-present) – Secretary (2002-2007), Chair (2007-2013), Committee member (2002-present) EFCE Fluid Separation Working Party – Member of IChemE Education and Accreditation Forum (2013-present) – Treasurer (2011-2015), Committee member (2011-present) IChemE Fluid Separations Special Interest Group – Chair (2003-2007), Committee member (1997-present) IChemE Education Special Interest Group – Member of IChemE Awards Panel & Medals panel (2014-present) – Member of Scientific Committee for Mathematics, Natural Sciences and Technology of The Research Council of Norway (2014-present) – Member of Industry Fellowships Panel of the Royal Society (2014-present) – Editor-in-Chief, Chemical Engineering Research and Design (2010-present) – External Examiner, College of Engineering, Swansea University (2014-present) – External Examiner, Department of Chemical Engineering, Cambridge University (2015-present) – Member of Dortmund University , Faculty of Biochemical and Chemical Engineering Advisory Board (2017-present) – Member of UCL's Education Committee and Quality Review Sub-Committee (2016-present)

6. CASE STUDIES: IMPACT ON INDIVIDUALS

Recommended word count: 1500 words

Three individuals working in the department should describe how the department's activities have benefitted them.

The subjects of the case studies should include a member of the self-assessment team and a member of professional or support staff. The case studies should include both men and women.

More information on case studies is available in the awards handbook.

We present three case studies that reflect our culture and the support we give as a department. The cases are representative of our support through transitions, flexible working, career breaks, and both maternity and paternity leave.

Teaching Fellow

I have spent most of my formative years as a professional within the UCL Department of Chemical Engineering, having joined in 2007 as an undergraduate student coming from an inner-London state all girls' school.

After four years as an undergraduate, the inclusive and friendly environment within the department, combined with its research excellence, attracted me to stay for a PhD which I began in 2011 under the supervision of Professor Eva Sorensen.

During my PhD, I suffered from a medical condition that meant I had to attend frequent hospital appointments. The department was very understanding and provided me with a laptop to enable flexible working, particularly as my research topic was mainly computational. I eventually needed to have surgery, which took place in 2014, and was given plenty of time off and support during my recovery. My illness was extremely disruptive to my work, and with support from my supervisor and Head of Department, I was granted an extension of time to finish my PhD.

Although I enjoyed my research work, I was more attracted to the teaching side of an academic career and was encouraged to apply for a post as Teaching Fellow for the new Integrated Engineering Programme (IEP) which I took up part-time (0.5 FTE) in July 2014, moving to full time a year later. Although this meant I would have to balance my illness, PhD work and professional work, my supervisor and Head of Department were very supportive and allowed me great flexibility in how I spent my time, and where I worked. My supervisor would also encourage me to attend any development courses that would be useful for career progression following this teaching –only path.

I am naturally a very anxious person, but the safe atmosphere provided by the department meant I was not too worried about the transitions from undergraduate student to postdoctoral student to staff. The transition into a staff role that was fairly new was rather daunting for me, but once I started the role, it became clear that there was continued support for me. For instance, I was instantly given a mentor to discuss career progression, encouraged to work independently and supported for any ideas that came up. I am now the departmental lead for the IEP, and am working within a Faculty team to run this programme for over 1500 students.

The amount of support the department gives for outreach initiatives was one of the reasons I applied for the teaching fellow position as I have always been very active with school outreach work and there has never been a shortage of encouragement from the department to pursue these avenues. I am now leading one of our main outreach events, the Headstart programme which runs every summer, as well as our activities for National Women in Engineering Day. Being able to support young people, many of whom come from a background similar to mine, is very rewarding and I am proud to support my department and UCL in this work.

(507 words)

Dr Han Wu

Senior Research Technician

I joined the department in 2010 as a postdoctoral researcher working on polymorphic pharmaceuticals. I then decided to take 1.5 years career break to welcome my second child in 2012. I re-joined the department in 2013 and became a senior research technician establishing and maintaining a new research facility in the Department and EPSRC-sponsored Centre for Nature Inspired Engineering (CNIE).

The Department has been very supportive for my career development. I was given complete trust and freedom to work both independently and collaboratively for my postdoctoral project. I was able to: choose the direction for my project; make progress with friendly and supporting colleagues and professors at UCL; present my work at various international conferences leading to collaborations and publications; be granted beam time at the national synchrotron lab, Diamond, as PI and hence author more publications.

The support from the Department was amazing when I started my senior technician job. I was, again, given support and complete trust, responsibility and freedom for all my duties including procurement, tendering, travelling to companies with samples to be tested, financial and daily management of the research facility, and constructing the facility webpages. I was paid by the Department to take a Prince 2 management course and gained certificates at both foundation and practitioner levels.

I have flexible working hours to fit my research obligations and the time to look after two children at home. I normally work late as this fits the working pattern for most researchers. This also means I can take my children to school in the mornings. I occasionally work at the weekends to carry out urgent sample analysis but also am able to work from home whenever necessary. CNIE is a well-managed facility to which I contribute and received an excellent mid-term review from EPSRC. It is the support from the Department that has made the balance between work, research and family life possible and easy to manage. I always take 3-4 weeks holidays every year to visit my parents in China during the summer, when most students and researchers are away. This allowed me to spend more quality time with my family and my children, and enjoy my working environment even more.

(371 words)

Dr Federico Galvanin

Lecturer in Chemical Engineering

I came to the UCL Department of Chemical Engineering in January 2014, after a post-doctoral research activity at the University of Padova (Italy), to start working as a post-doc research associate (PDRA) under the supervision of Prof. Gavriliidis and Dr Vivek Dua. This period was important for me to discover a new, very stimulating and friendly environment characterised by proactive and open collaborations between academics and staff working on different research topics/areas. In September 2015, I started a new position as a Lecturer.

Since my first appointment as research associate, the Department has been very supportive towards me and my family. I moved from Italy with my wife and my daughter, who was one year old when we moved to London. Balancing family and academic career, having children and family commitments, is not a trivial task. The Department has helped on this matter by arranging flexible working hours and giving the possibility to work from home to fulfil my family responsibilities.

In November 2016, my wife and I had a second child. It was a difficult moment because the baby was born 6 weeks before the due date and, being a premature baby, he needed extra care. The Department was very supportive also on this occasion, guaranteeing the immediate paternity leave despite all the teaching commitments I had at that time, and in arranging the teaching support for my absence. I have also been able to work even more flexibly to enable me to care for my wife and children, and my colleagues and Head of Department have been very supportive in this.

The Department has fully supported me in my research, providing funding for a PhD studentship at the beginning of my lectureship and allowing me to explore new directions in research by establishing and promoting a very multidisciplinary environment. My teaching and administrative work commitments have been gradually introduced through the years allowing me to gain experience without having to persistently work overtime. In particular, the transition between the PDRA position and the lectureship has been smooth, allowing establishing a personal balance between research and teaching-related activities. I am currently teaching one undergraduate module and one graduate module, supervising three PhD students as primary supervisor, various MEng and MSc students and mentoring personal tutees. As an administrative role, I am the departmental deputy undergraduate admission tutor, helping on the admission procedures and open events. I am also the academic representative of my research group which counts eight academic staff.

The friendly environment in which I have been working from the beginning of my UCL experience, and the freedom and flexibility offered has led to significant progress in my research, including EPSRC funding, a number of publications and international collaborations with academics, and particularly relevant, contacts with industry. The encouragement and mentoring by my colleagues, in particular my mentor and co-supervisors, and the collaborations that we have established, have considerably helped this progression.

(491 words)