



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
<i>Recommended word count</i>	
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	Imperial College London	
Department	Materials	
Focus of department	STEMM	AHSSBL
Date of Gold application	April 28 th 2017	
Date of current Silver award	2013	
Institution Athena SWAN award	Date: 2012	Level: Silver
Contact for application Must be based in the department	Professor Mary P. Ryan FREng	
Email	m.p.ryan@imperial.ac.uk	
Telephone	0207 594 6755	
Departmental website	http://www3.imperial.ac.uk/materials	

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.

Peter D Haynes MA PhD CEng FIMMM
FInstP

Professor of Theory & Simulation of
Materials
Head of Department of Materials

28th April 2017

Dr Ruth Gilligan
Athena SWAN Manager
Equality Challenge Unit
7th Floor, Queens House
55/56 Lincoln's Inn Fields
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Dear Ruth

I strongly support this Gold application; to which I have personally contributed as a member of our Self-Assessment Team. I became Head of Department (HoD) on 1 July 2015 and since then I have made a priority of accelerating the culture change already under way to establish an inclusive environment that provides opportunities for, and actively promotes, the success of all its members. Indeed, the major topic of discussion at the meeting to confirm my appointment as HoD with Imperial's Provost was Athena and how I planned to promote it within the Department.

The Department has grown rapidly over the last ten years and is now enjoying considerable success in research and education. It is absolutely clear to me that this must primarily be attributed to the people working here: not just the academics, research staff and students but also the professional and support staff. Although the role of HoD is executive in nature, I am convinced that the best decisions will always be made following the widest possible consultation. During my first summer as HoD I reviewed the terms of reference and membership of departmental committees. These now meet at lunchtime on Tuesdays or Thursdays during term time, with papers published in advance on the departmental Information Portal, accessible to all staff, developed by my Personal Assistant. Major items are discussed at the termly all-staff meetings that I have introduced. On Tuesday mornings I host an informal coffee morning for all academic staff to provide an opportunity for discussion of matters arising, as well as to encourage social interaction that tends to be squeezed out by commuting in a busy London-based institution.

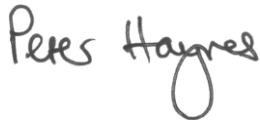
The next phase of change, which is under way, recognises that we all depend upon each other for our collective success. We are currently renewing our departmental strategy, and at the heart of our pursuit for excellence is the essential requirement for a supportive environment to enable all our people to thrive in their roles. For example, with help from Imperial's excellent Postdoc Development Centre we have rolled out a scheme to promote mentoring for both research and early career academic staff. Eight postdocs signed up for mentors in the first round and all non-professorial academic staff have chosen mentors who play a vital supporting the promotion process. Professional and

support staff receive similar support from the Department's Operations Manager through the job level review process.

Whilst we are proud of the progress we have made in our departmental culture since our 2013 Silver Award, reflected in the international reach of our beacon activities, we recognise from our data monitoring that there is much still to do. I am personally concerned by the lack of engagement of some fixed-term research staff with departmental activities and the attitudes towards women and minorities displayed by a small number of incoming undergraduates engaging in "banter". The latter has already led to an introductory lecture about departmental culture and unconscious bias training for Freshers. Our action plan outlines how we will further address these challenges and, by making the Department a more supportive environment for all our members, achieve our strategic aims through the individual and collective success that it enables. The Athena process encourages us to keep people as our focus. A Gold Award would not only recognise the progress we have made but also propel us forward as we seek to make our Department an even better place to work.

I confirm that the information presented here is an honest, accurate and true representation of the Department, and I commend it to you.

Yours sincerely,

A handwritten signature in black ink that reads "Peter Haynes". The signature is written in a cursive style with a large, looped 'P' and 'H'.

Professor Peter D. Haynes
Head of the Department of Materials

WORD COUNT 594



Department of Materials – Athena SWAN Submission

April 2017

Department of Materials Athena SWAN Awards: Silver 2010, Silver 2013
Imperial College Athena SWAN Awards: Bronze 2009; Silver 2012

Contact: Professor Mary P. Ryan FEng
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Tel: 0207 594 6755

<http://www3.imperial.ac.uk/materials>

TOTAL WORD COUNT: 12894

Abbreviations and References

AOC:	Academic Opportunities Committee
AMSE:	Advanced Materials Science and Engineering
ANE:	Advanced Nuclear Engineering
BAME:	Black, Asian and Minority Ethnic
B.Eng:	Bachelor of Engineering
CDT:	Centre for Doctoral Training
DMC:	Department Management Committee
DOM:	Department Operations Manager
DoR:	Director of Research
DPS:	Director of Postgraduate Studies
DRM:	Department Resources Manager
DTA:	Doctoral Training Account
DUGS:	Director of Undergraduate Studies
ECR:	Early Career Researcher
EPSRC:	Engineering and Physical Science Research Council
FoE:	Faculty of Engineering
FTE:	Full Time Equivalent
GSEPS:	Graduate School of Engineering & Physical Science
HEIDI:	Higher Education Information Database for Institutions
HoD:	Head of Department
ICRF:	Imperial College Research Fellow
L:	Lecturer
LCN:	London Centre for Nanotechnology
LDC:	Learning and Development Centre
M.Eng:	Master of Engineering
M.Sc:	Master of Science
MPDT:	Materials Post-Doc Development Team
NSS:	National Student Survey
PDC:	Postdoc Development Centre
PDRA:	Post-Doctoral Research Associate
PG:	Post Graduate
PGSS:	Post Graduate Staff Student Committee
PGC:	Post Graduate Committee
PGR:	Research Post Graduate (PhD)
PI:	Principal Investigator
PRDP:	Personal Review and Development Plan
PRES:	Postgraduate Research Experience Survey
R:	Reader
RAE:	Research Assessment Exercise
RC:	Research Committee
RO:	Research Officer
REF:	Research Excellence Framework
ROM:	Research Operations Manager
SAT:	Self-Assessment Team
SL:	Senior Lecturer
SOLE:	Student On-Line Evaluation
SSC:	Staff Student Committee
TC:	Teaching committee
TOR:	Terms of Reference
PGT:	Taught Post Graduate (Masters)
UG:	Under Graduate
WP:	Widening Participation

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 mission of the Department of Materials at Imperial is to *achieve enduring excellence in research and education in materials for the benefit of society*. Our subject sits at the intersection of science and engineering, with a growing overlap with biomedicine: it is a place for vibrant interdisciplinary work.

We are the largest and oldest materials department in the UK, tracing our history to the founding of the Government School of Mines in 1851. However, in 2003 it was barely viable, with an intake of 35 UGs and 19.6 FTE academic staff. Professor Julia King, (then Head of Faculty), took the decision to invest in the Department, embarking on an expansion programme under a new, externally-appointed Head, Professor Bill Lee. This led to a significant growth to 41 academic staff and an intake of 103 undergraduates on our BEng (Materials) and MEng programmes (Materials, Biomaterials with Tissue Engineering, and Materials with Nuclear Engineering); and 72 taught postgraduates (Advanced Materials Science and Engineering and Advanced Nuclear Engineering MSc courses) in 2016. Consequently, we are a young Department (in age profile) that has faced the challenge of maintaining cohesion through a period of rapid growth, but also benefited from the opportunity to shape the department mission and culture. In terms of senior role models, we have three female Professors (two Fellows of the Royal Academy of Engineering) and a further successful promotion (effective September 2017); all have been promoted to Chair at Imperial.

The Department's research activity is organised *via* 'themes' as shown in Figure 2.1; with considerable interaction across thematic areas. We have very strong female representation in certain areas (up to 60%). However, there is a lack of representation in some areas (Alloys, Theory and Simulation) and we aim to identify people in these areas for future positions.

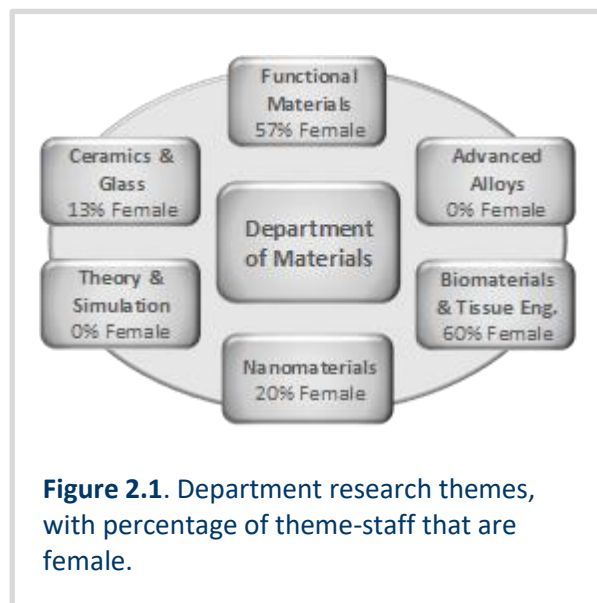


Figure 2.1. Department research themes, with percentage of theme-staff that are female.

The interdisciplinary nature of materials is reflected in the number of joint academic appointments, providing insight into policies across College, (e.g. workload models) and facilitating transfer of best practice in both directions.

Staff

	Male	Female	Total	% Female
Research-only	70	35	105	33
Teaching and Research	28	9	41*	24
Teaching-only	0	2	2	100
Professional and support staff	13	20	33	61
Total	111	66	177	37

Students

	Male	Female	Total	% Female
Undergraduate students (UG)	262	102	364	28
Postgraduate taught students (PGT)	42	29	71	41
Postgraduate research students (PGR)	129	64	193	33
Total	433	195	628	31

Table 2.1. Summary data (by head-count) for *current* staff and student numbers by gender. [Staff data snapshot date 1 January 2017, student data snapshot 31 December 2016.] * including all joint staff.

Staff Member	Joint Department	Grade	Date Joined
Fionn Dunne	Mechanical Engineering	Professor	02/07/2012
Mike Finnis	Physics	Professor	03/01/2006
Finn Giuliani	Mechanical Engineering	Senior Lecturer	14/04/2009
Peter Haynes*	Physics	Professor	01/06/2007
Arash Mostofi	Physics	Reader	01/10/2007
Milo Shaffer	Chemistry	Professor	01/03/2015
Molly Stevens	Bioengineering	Professor	01/01/2004
Paul Tangney	Physics	Senior Lecturer	01/09/2007

Table 2.2. Materials Joint Appointments (*transferred to 100% materials on becoming HoD in 2015)

Peter Haynes succeeded Neil Alford as Head of Department (2015) and appointed two Associate Heads for Research (Mary Ryan) and Teaching (Jason Riley). Our principal administrative officer is the Department Operations Manager, Cora O'Reilly, who returned from maternity leave in April 2016. Alongside this senior management team, we have revisited membership of departmental committees to ensure a balance of gender and career stage.

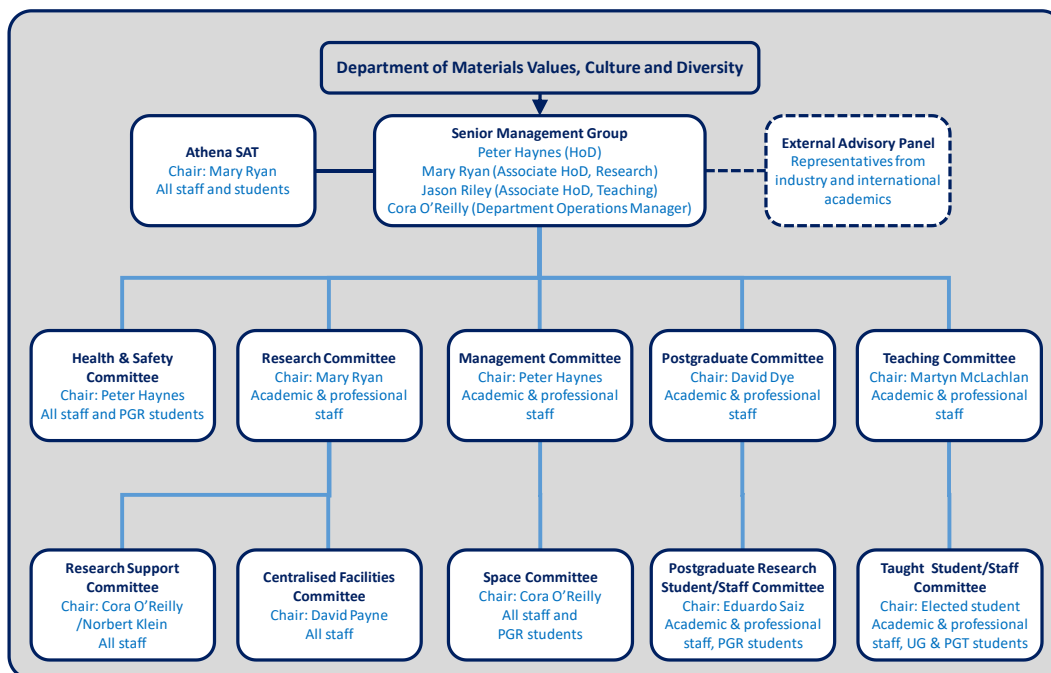


Figure 2.2. Departmental Committees: showing organisation structure, committee chair and department demographic represented at the committee.

The team of professional and support staff has grown with the Department with new professional staff posts to support the increasing administrative workload on research and academic staff. In parallel we have expanded our technical staff to support of our state-of-the-art facilities. The team of Research Officers has also expanded.

Our student cohorts are international, with a roughly even split between the Home/EU and the rest of the world. We work closely with the student Materials Society to promote social interactions between staff and students, including regular lunchtime seminars. Critical to the cohesion of the Department is that all students are introduced to the expectations of the Department *via* induction programmes and positive behaviours are reinforced throughout the programmes.

WORD COUNT: 511

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

In 2015, in response to previous Athena feedback, we re-organised the self-assessment team (SAT) to be inclusive of the whole Department community, enabling wider participation and discussion, with the remit to support **all** staff and students and to work towards cultural changes that benefit **everyone** and not only women. The students and postdoctoral research staff (PDRAs) on the committee are elected representatives canvassing opinions from, as well as reporting back to, their respective cohorts. Mary Ryan is the current chair, a position recognised in the workload model (50 hours credit - equivalent to a 12-lecture course); other members are recognized for their contributions *via* the annual appraisal process (PRDP, staff) and invitation to the Gala Dinner (PDRAs/students). Membership is voluntary and new members are welcome.

Team Member	Position	Background	Membership of Other Dept. Committee	Subgroup / activity
Mr Enric Juan Alcocer	*UG representative	Enric is a final year MEng student. He is the current Arts and Entertainments Board Chair and sits in the Student Union Council.		Culture
Dr Liz Elvidge	^Director of the PDC	Liz provides support and coaching to Imperial's 2000 PDRA's. She is married and has two grown step children.	College AOC	Advertising/ promotion
Professor Peter Haynes	Head of Department (HoD)	Peter is married with three primary school children in Oxford, from where he commutes relying on flexible working around core hours.	All Dept. Committees	Data Culture
Dr Sandrine Heutz	MSc (Advanced Materials) Course Director	Sandrine is married with three children aged 4-12. She is responsible for a growing MSc programme and dreams of fabricating the first all-organic flexible spin valve.	PGSS, RC SSC, TC	Data
Dr Samuel Humphry-Baker	*PDRA Representative	Sam is a PDRA in his second year working on fusion energy materials. He coordinates departmental events and supports the professional development of PDRA's and fellows.	PDRA committee	Culture
Mrs Darakshan Khan	Departmental Resources Manager (DRM)	Darakshan is married with two children and has benefited from working flexible hours and working from home.	DMC	Advertising/ promotion
Dr Cecilia Mattevi	Academic Staff	Cecilia is married and has previously worked in Italy and the USA. She joined the Department as a PDRA and was awarded an ICRF before a lectureship in 2013. She is currently on maternity leave after the birth of her daughter in April 2017.		Culture
Dr Martyn McLachlan	*Director of UG studies (DUGS)	Martyn is responsible for UG programmes. He is married, and a Warden in one of the UG halls of residence.	SSC, TC	Data
Dr Cora O'Reilly	Department Operations Manager (DOM)	Cora has been in post for two years and returned from maternity leave in April following the birth of her second child.	DMC	Culture
Dr David Payne	UG admissions team	David is part of the UG admission team and director of facilities in the Department. He is married with 2 children and a Warden in one of the UG halls of residence.	RC	Culture
Professor Mary Ryan FREng (Chair)	Director of Research (DoR), Departmental Tutor for Women	Responsible for research strategy, she is married with two school-age children; she usually works one day a week from home.	DMC RC	Website Culture
Dr Camilla Stitt	*PDRA Representative	Milly is a PDRA in her first year working on <i>in-situ</i> X-ray studies of electrochemical systems. She coordinates departmental events for PDRA's and communicates between PDRA's and the rest of the department.	PDRA committee	Culture
Ms Sonia Tomasetig	PA to HoD, research administrator	Sonia supports the HoD and Research Operations Manager and is married with one child.		Data
Miss Celeste van den Bosch	*PG representative	Celeste is a PhD student working on Lithium-ion batteries. She is a sub-warden in student halls.		Website

Table 3.1. Department of Materials Athena Team (*representative groups added since last submission, ^external to the Dept.)

(ii) an account of the self-assessment process

The whole SAT meets every two months, in core hours. A standing agenda provides structure and ensures that each member has allocated time to raise any issues (UG, PG etc.). Subgroups meet informally as necessary, and work on a range of activities including: data (monitoring and analysis, with input from DPS), advertising and promotional literature; website, and culture (events, activities, behaviour). Other subgroups are formed as required, for example for application preparation, all members of the SAT have contributed to review of the document; additional input and analysis for this application was provided by Dr Luc Vandeperre (for UG) and Dr David Dye (for PG). Information is circulated within the team *via* email. Minutes from the meetings are made available to all staff, *via* a dedicated SharePoint site, for comment and suggestions. A key component of the departmental SAT and the remit of its members, is to *communicate* the challenges, targets and ethos of the Athena programme within the Department (and beyond).

The Chair sits on the DMC, where Athena is a standing agenda item, and is the departmental representative on the Faculty Academic Opportunities Committee (AOC). Supplementary to the availability of minutes, updates on Athena-related matters and actions are presented at an all staff meeting every term and staff are invited to give feedback. In addition, the taught and PGR staff-student committees (SSC), both act as fora for discussing diversity issues with the year group representatives, all of which are fed back to the Athena SAT. SAT members sit on the SSC and PG-SSC as well as the teaching committee (TC) and research committee (RC) and ensure that both teaching and research components adhere to Athena values.

Within College, advice is sought from the Faculty of Engineering AOC and from the Department of Chemistry (Athena gold). External consultation has included discussions with other UK University SWAN coordinators (Cambridge, Loughborough, Manchester).

Feedback Type	Target Demograph	Date(s)	Number of invited participants / Response Rate	Remarks / Actions
Surveys	UG	Annually- NSS	Graduating class/ ca 87	Review of feedback and engagement activities
	UG	2 nd Year (2014)	98 / 62%	Review of culture/ lab exercise groups
	PG	Annually-PRES	ca 50%	Review of supervision, introduction of compulsory second supervisor
	All Staff	Imperial College Staff Survey 2014 (and March 2017, results due May)	63% 65%	Action of staff load / transparency of processes
	All Staff	March 2015 (academic)	38 / 53 %	Review of Dept. Policies
	All Staff	April 2016	89 (staff and students)	Revision of Dept. facilities, rebalancing of M/F toilet facility ratio
Workshops	Staff Away Day	April 2015	38 / 90%	Reflection on data trends and discussion of actions Discussion of College staff survey, support culture
	Academic Staff Meetings (dedicated sessions)	July 2015, Oct 2016	38 / 79% 38 / 73 %	Athena activities, Code of conduct, unconscious bias, PDRA mentoring
	Academic Staff Meetings	Termly (standing item)	38 / varies, typically 75%	Opportunity for feedback, update on activities.
	All Staff Meeting	Termly (standing item (Aug 2014 -Jan 2016)	Typically, 50-75%	Opportunity for feedback, update on activities.
	HoD Meetings with representative groups	Annual (UG years groups, PhD, PDRA)	80%	Opportunity for feedback, update on activities.
Individual Interviews (I) / Focus Groups (F)	All Staff	Jun-Aug 2014 (I) Jan 2016 (I)	I18 / I20	Induction processes, policy and transparency PDRA mentorship Department culture
	All Staff	July 2015 (F –PDRA-led)	F16 PDRA F12 Website	Department culture and support Website

Table 3.2. Feedback routes for the Department of Materials Athena Team

Statistics are collated and reported annually. Feedback is collected from a wide range of sources (departmental reviews, individual interviews, student-led and PDRA surveys, staff workshops and meetings, Imperial College Staff Survey *etc.*). Student and PDRA feedback is also collected from the staff student and PDRA committees; and *via* representation at the SAT. The HoD reports any issues that arise *via* PRDP assessments. In addition, we ran a session at the 2015 annual academic staff Away Day during which staff were asked to review, reflect and comment on the trends in our data (recruitment, outcomes). The SAT also instigated a session on “Communication and Culture” at the 2015 Away Day.

Our work has been guided by our action plan, which has been reviewed and extended to the whole Department, with a focus on culture and support; and highlighting the key demographic for support. Some items from the previous plan were completed successfully:

- Flexible working is now embedded and the systems work
- Tasks related to work-load and promotion have been successfully translated to new workload and process models
- Induction booklets have been created (across all levels – plan was for PGR)
- Our recruitment policies are updated and successfully implemented with data collection from application to appointment
- We have revised (and continue to do) representation on decision making bodies
- We have partner schools (exceeding target numbers)
- We have identified candidates and successfully sponsored them for prestigious Fellowships (Xie, Ni, Goode, Regoutz), and for academic posts (Xie, Mattevi)
- We have formalised and embedded the role of post-doctoral mentor (Aguadero) and tutor for women (Ryan).

Our female academic pipeline is strong: we have doubled the number of female professors from 2 to 4, more than twice the sector average. Data collecting tasks are now embedded within actions related to the demographic to better facilitate discussions and be responsive to any changes.

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

The SAT is embedded in the departmental management structure, and will continue to meet, progress and evaluate actions at the current frequency. Representation on the committee will be reviewed annually and rotated. Mary Ryan will step down as Chair later this year as she takes on the role of faculty ambassador for women. The action plan will continue to guide our meetings; with review and discussion of progress on actions, revision of plans when necessary and introduction of new initiatives.

From May 2017 the SAT will become a subgroup of a Department Committee for Culture, Equality and Diversity, to better represent our aims for **improving representation across all groups and the embedding of our cultural values in the Department.**

WORD COUNT 860

4. A PICTURE OF THE DEPARTMENT

Recommended word count: 2000 words

In benchmarking the department against national trends we have used the Higher Education Information Database for Institutions (HEIDI) <http://www.heidi.ac.uk/> and for student programmes the JACS Principal Subject 'Materials technology' which most closely matches our Department and degree courses. For staff data the cost centre for HEIDI used is 'Mineral, metallurgy & materials engineering'.

4.1. Student data

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

Action: Continue to monitor all UG and PG student data for gender or origin bias. (AP1 1.2, 2.5)

(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.

The Department only offers full-time Undergraduate and Masters programmes.

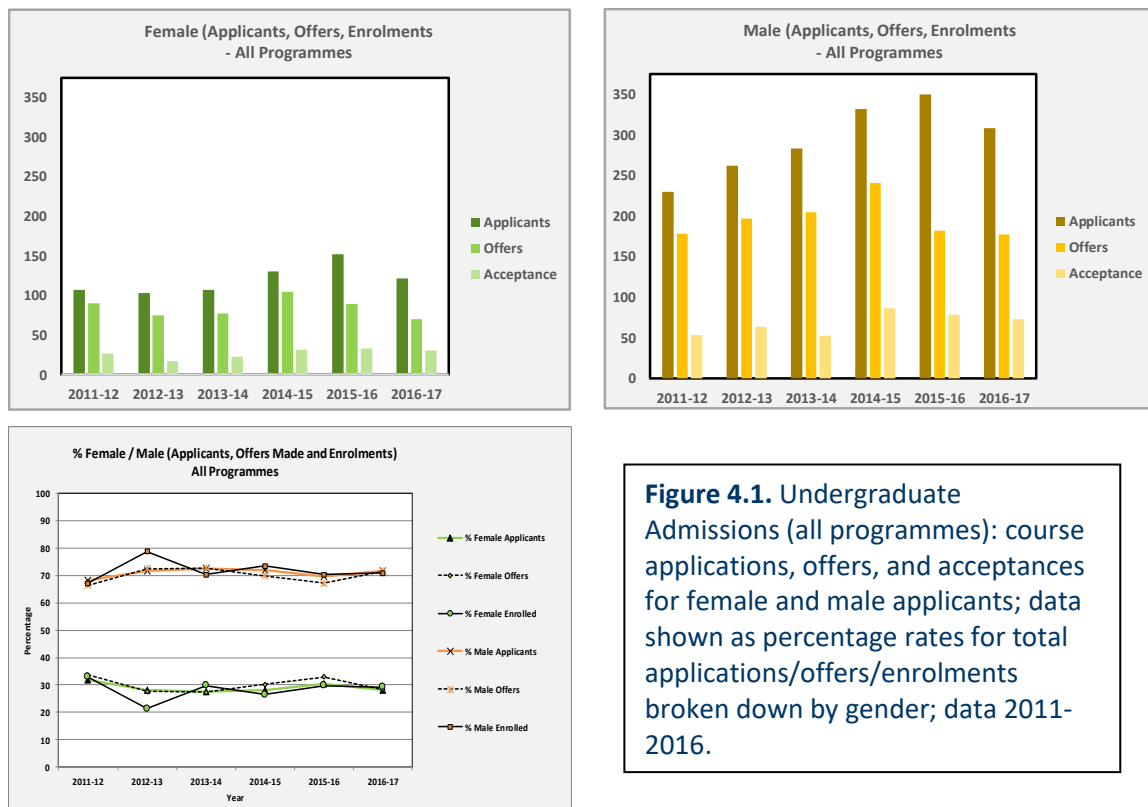


Figure 4.1. Undergraduate Admissions (all programmes): course applications, offers, and acceptances for female and male applicants; data shown as percentage rates for total applications/offers/enrolments broken down by gender; data 2011-2016.

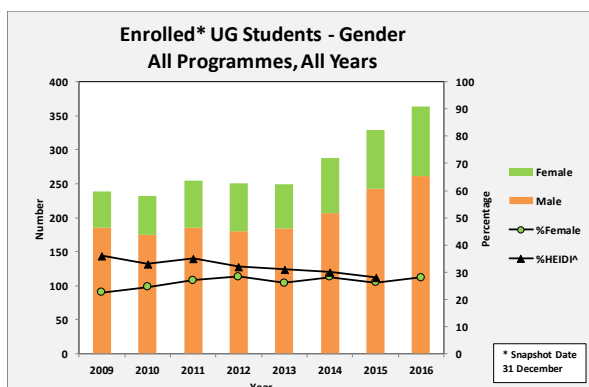


Figure 4.2. Total Enrolled UG students (all streams) broken down by gender; data 2011-2016. * HEIDI data based on JACS Principal Subject: Materials Technology (ALL UG students, Full-person equivalent, Level of study ('4 detailed')). ^2015-16 HEIDI data currently not available.

There is consistency in gender representation across application, offer and acceptance (enrolled). Our UG cohort has been fixed at ~30% female for the last 5 years, in contrast to a decline in the national numbers (HEIDI) to 28%. Whilst the proportion of females has not risen, it has remained constant during both: significant growth in UG numbers (from 79 to 110 over 5 years); and increased entry criteria (from AAB to A*A*A). Our aim is to increase the percentage of female UGs, to parity in the long-term, through raising awareness of the discipline and action in schools around key transition points (A-levels). Our UG course requires both maths *and* physics A level, unlike the majority of UK Materials departments (hence we are historically under-represented against the sector average). We reviewed this requirement (vs UG syllabus): the course content in 1st and 2nd year requires a significant amount of physics background and would be a struggle for any candidate without A-level physics. Within Imperial, UG admissions data suggest our numbers are similar to Physics, supporting this argument.

	2011		2012		2013		2014		2015		2016	
	N	%F	N	%F	N	%F	N	%F	N	%F	N	%F
Aerospace Materials	10	10	7	29	4	25	5	0	14	0	14	7
Biomaterials & Tissue Engineering	6	67	6	50	7	57	4	75	3	67	9	33
Materials Science & Engineering (BEng 3YFT)	79	28	87	30	73	29	81	26	72	25	92	27
Materials Science & Engineering (MEng 4YFT)	108	25	112	24	146	25	177	29	207	27	219	30
Materials with a Year Abroad (BEng 4YFT)	8	50	4	50	0	n/a	0	n/a	0	n/a	0	n/a
Materials with Management (BEng 3YFT)	20	45	22	45	12	0	10	10	14	21	16	19
Materials with Management and a Year Abroad (BEng 4YFT)	2	50	0	n/a	0	n/a	0	n/a	0	n/a	0	n/a
Materials with Nuclear Engineering (MEng 4YFT)	22	5	13	8	7	29	11	36	19	37	14	36
Total	255	27	251	28	249	26	288	28	329	26	364	28

Table 4.1 Number of students (N) enrolled on different streams and %Female on each stream.

Our UG degree courses are core for two years, followed by a range of choices for the M.Eng (Materials *with*: aerospace, biomaterials, nuclear). Further inspection of the data show that the situation is more complicated and highlights disparity across sub-disciplines. Women are historically under-represented in aerospace/nuclear materials, and over-represented in biomaterials: *e.g.* 2015-16 shows *no females* in aerospace versus 67% for biomaterials. In nuclear we took a critical look at how the course is promoted, both in literature, oral presentations, and amongst the cohort once admitted, and have subsequently seen an increase in uptake among female students. The aerospace course has seen declining numbers generally, and has been withdrawn from 2018 entry. We are monitoring the impact on intake demographic.

Action: Review course streams and advertising and monitor application / uptake rate across streams. (AP 4.1)



Current partner state schools

Our recent recruitment agenda has been driven by the need to increase student numbers applying directly for Materials (*i.e.* elimination of internal clearing, achieved since 2014 entry) and academic quality (rising entry criteria). Having achieved these aims, going forward our emphasis has switched to widening participation (WP), and in this first phase target WP schools selected by the Department includes over 35 state girls' schools across the country. A key transition point is the GCSE/A-level stage where opting to take Physics at A-level enables STEM options at degree level.

Action: Outreach to schools for WP: raising awareness of Materials as a discipline and encouraging girls to study A-level Physics. (AP 1.1, 4.6)

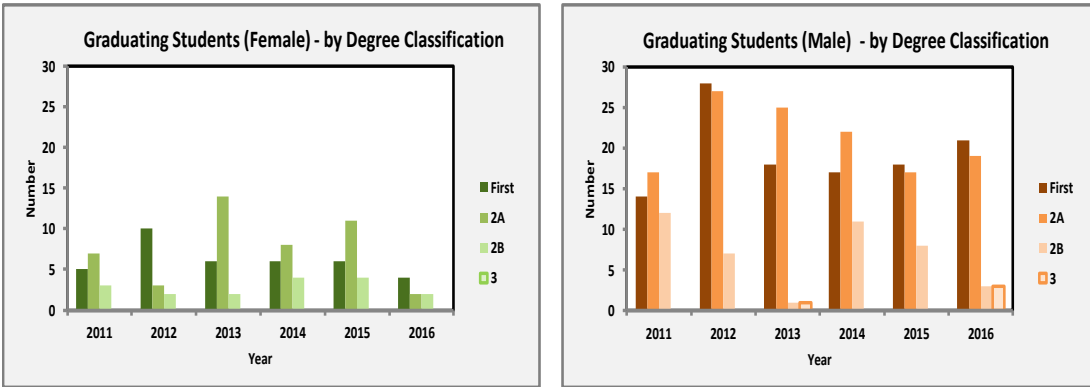


Figure 4.3. Number of graduates from 2011-2016 showing degree classification (note there are no 3rds for the female candidate).

The proportion of female students graduating with a 1st is in line with cohort ratio (~26%), an increase was seen in 2015 (46%), dominated by biomaterials. A proportionately *lower* number of female students graduate with 2B suggesting that the females in the class are achieving in-line, or better than, their male counterparts.

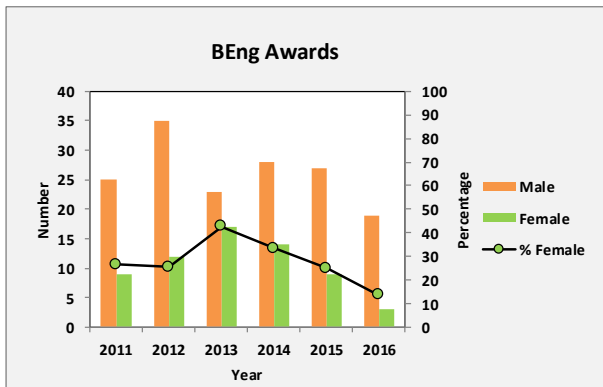


Figure 4.4a. BEng awards in materials from 2011-2016 broken down by gender

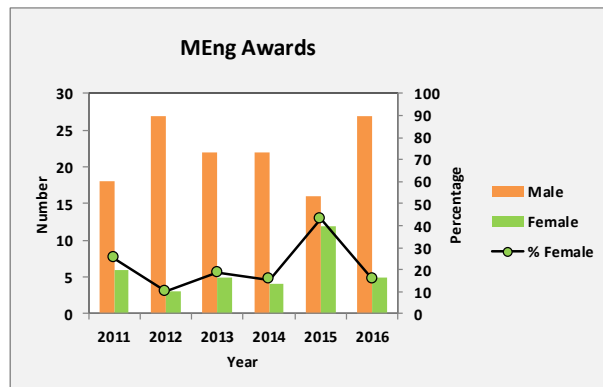


Figure 4.4b. MEng awards in materials (all streams) from 2011-2016 broken down by gender

A greater number of female students left with B.Eng rather than M.Eng degrees (up to 2014); with a dramatic shift in 2015 for females remaining on the M.Eng programmes (in both biomaterials *and* nuclear). The 2016 data suggest a sudden drop in the graduating number of females: this is an anomaly in the data that results from the fact that our degree programme has combined B.Eng/M.Eng entry and students change between programmes up to start of 3rd year. Our projected 2017 graduates are B.Eng: 12F (25%) MEng: 15F (32%).

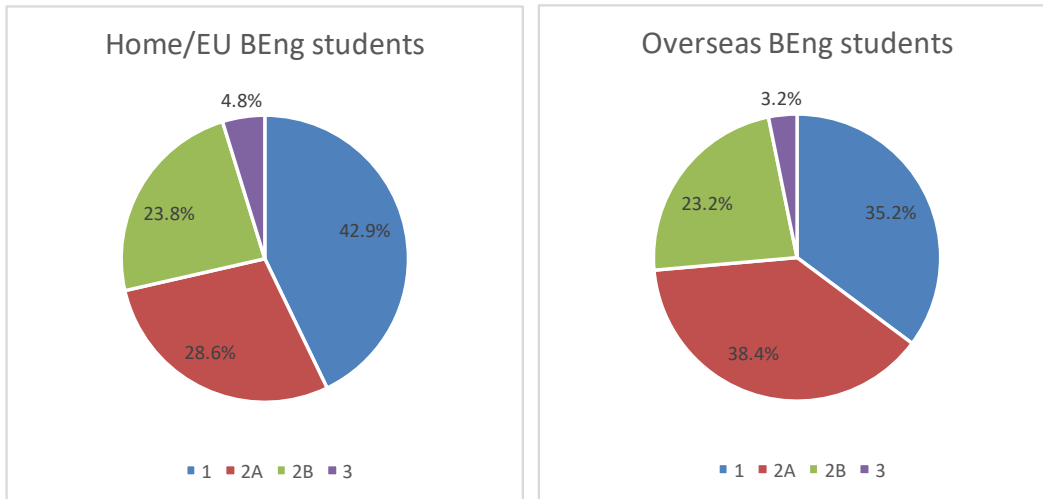


Figure 4.5. Data showing outcomes for B.Eng students broken down as Home/EU vs Overseas

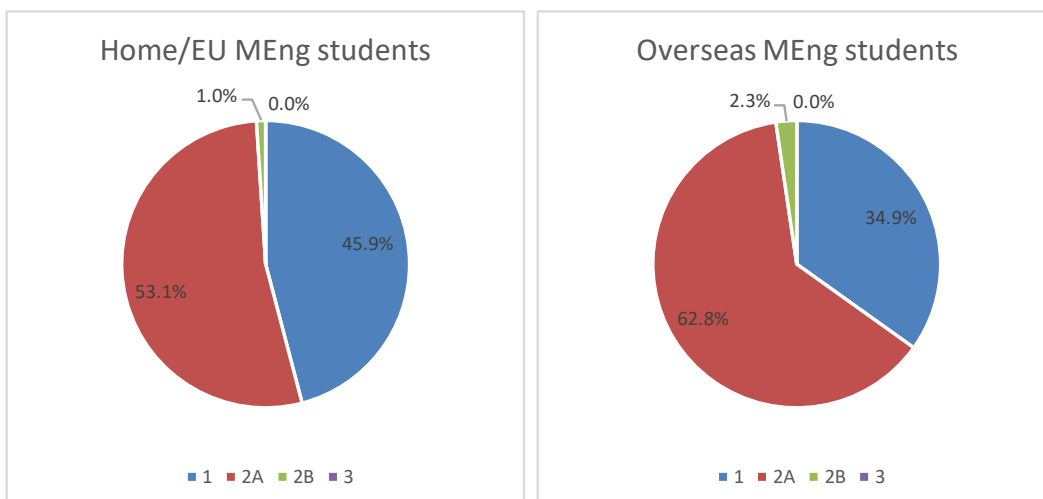


Figure 4.6. Data showing outcomes for MEng as Home/EU vs Overseas (note that students must be achieving a 2A at end of 2nd year to stay on the MEng stream)

The proportion achieving 1st and 2A is approximately the same for home/EU and overseas, but fewer overseas students achieve 1st, possibly related to weighting on significant report writing in final years (being evaluated further by DUGS).

Since 2014, in addition to anonymous examinations, all UG boards are carried out anonymously (no gender information provided), thus alleviating unconscious bias effects in both marking and boundary setting.

To understand student performance, we also monitor results in core years (1-2) - where all students take the same courses, so data are directly comparable. The averages show that *male and female students perform equally in core year assessments*. Similarly, there are no significant differences in core year performance for Home/EU vs Overseas students.

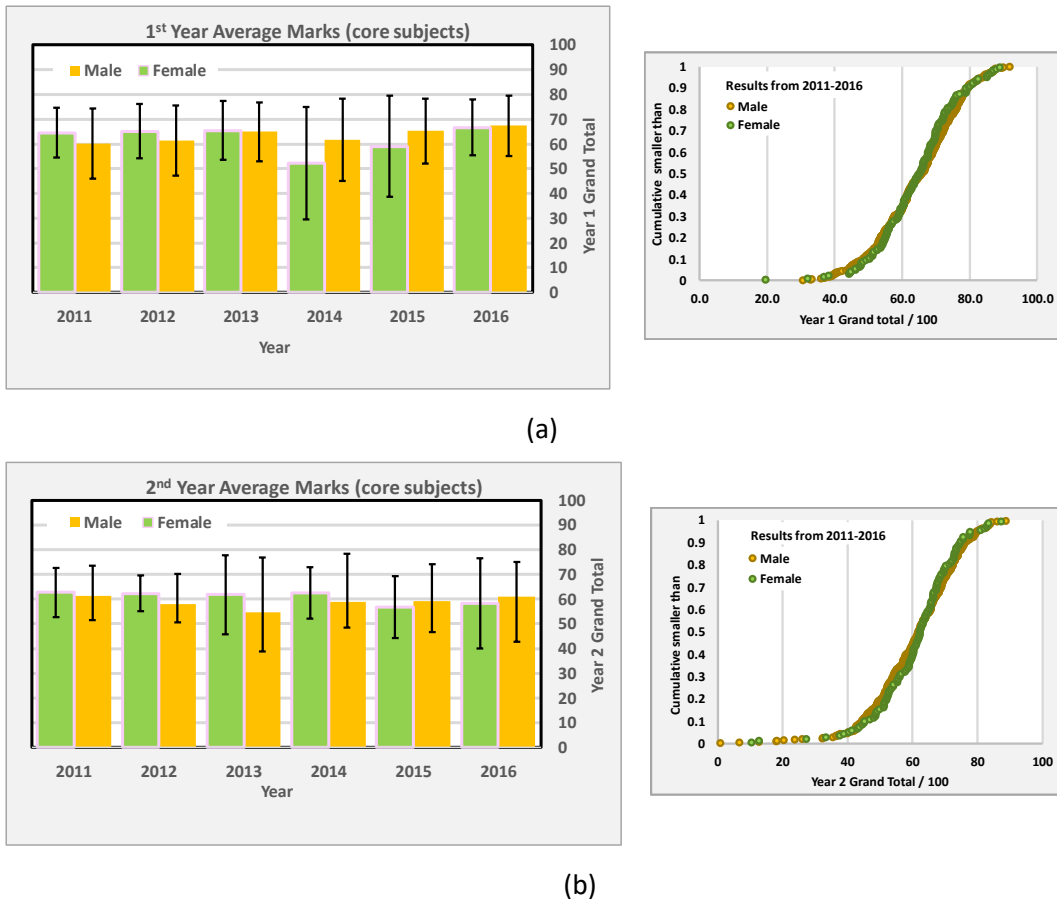


Figure 4.7 Average marks and distribution medians for a) 1st and b) 2nd (core) years on the UG (B.Eng or M.Eng) programme vs gender.

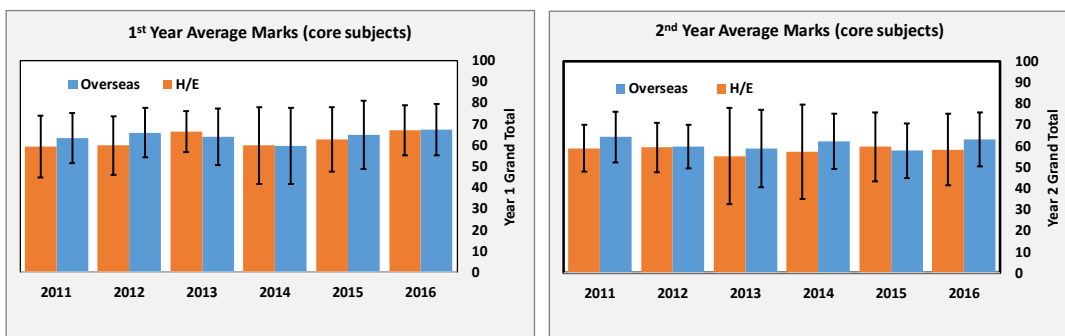


Figure 4.8 Average marks and distribution medians for core subjects: 1st (left) and 2nd (right) years on the UG (B.Eng or M.Eng) programme for Home/EU vs Overseas students.

(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.

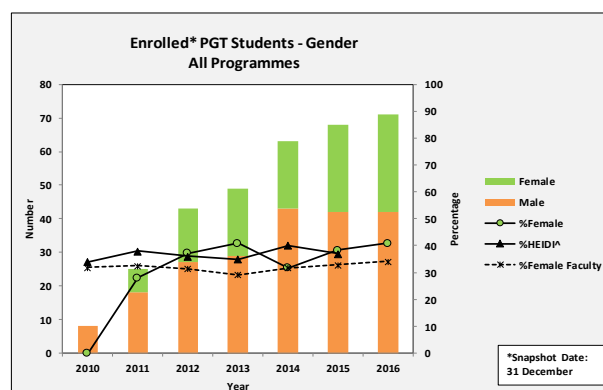
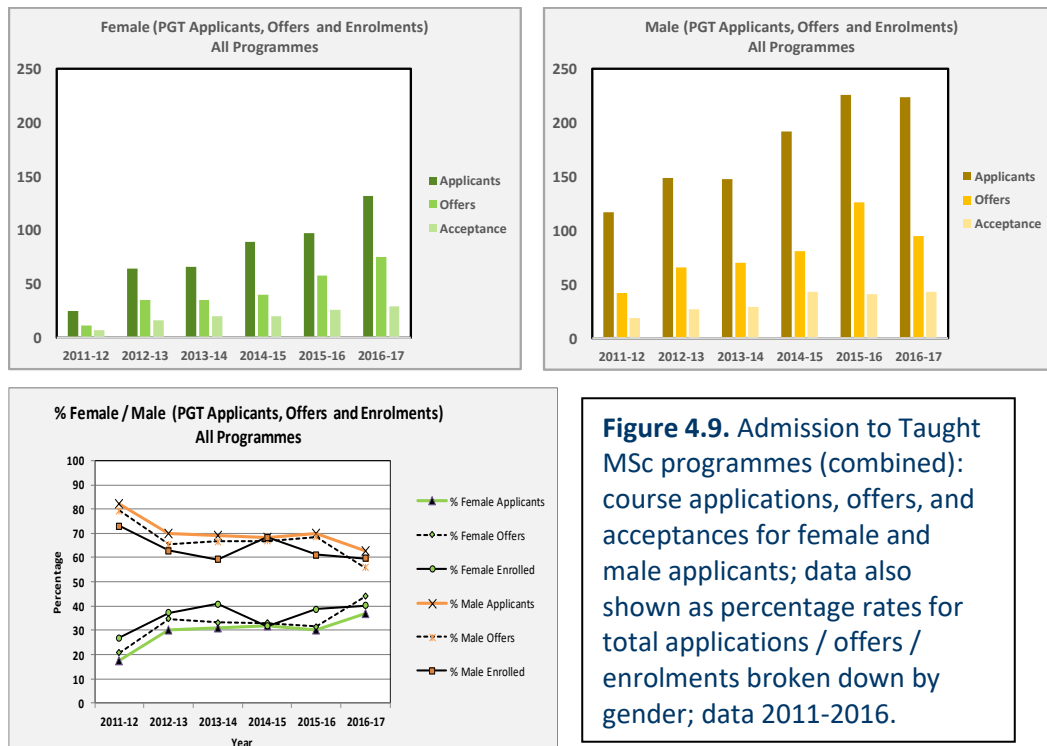


Figure 4.10. Students enrolled on taught MSC programmes; note that in 2010 only the MSc in Advanced Nuclear Engineering was running. (Based on JACS Principal Subject: Materials Technology ALL years, PGR students, Full-person equivalent. 2015-16 HEIDI data not currently available). Faculty of Engineering at Imperial data included for comparison.

The Department offers two (full-time) taught MSc courses: Advanced Materials Science and Engineering (AMSE) and Advanced Nuclear Engineering (ANE). The ANE course has relatively low numbers and the F:M ratio fluctuates between 10 and 25%. The course director has worked to create gender-neutral promotion of the course in terms of language

and imagery, and continues to monitor this in consultation with HR. The AMSE course consistently has ~40% female representation. AMSE takes entry from a wide range of science and engineering specialisms and has a successful class culture: *e.g.* the course has two class reps (at least 1 female), who are provided administrative and financial support to organise events *e.g.* Christmas lunch, class picnic *etc.* Events are endorsed (and attended where possible) by the academic leadership. AMSE currently has both female director and tutor (Heutz and Xie) and so female profile is high, but the numbers were similarly high under previous course director (Martyn McLachlan). For AMSE, there is evidence of high translation of offers to enrolment for female applicants, emphasising the importance of the interview process and Department visit, in increasing numbers of female students. Gender does not have a significant impact on degree classification, but failure rates are lower for females, which may be attributed to support structures that are particularly noticed by women (AMSE). There is no consistent message from the nuclear data (numbers are considerably smaller).

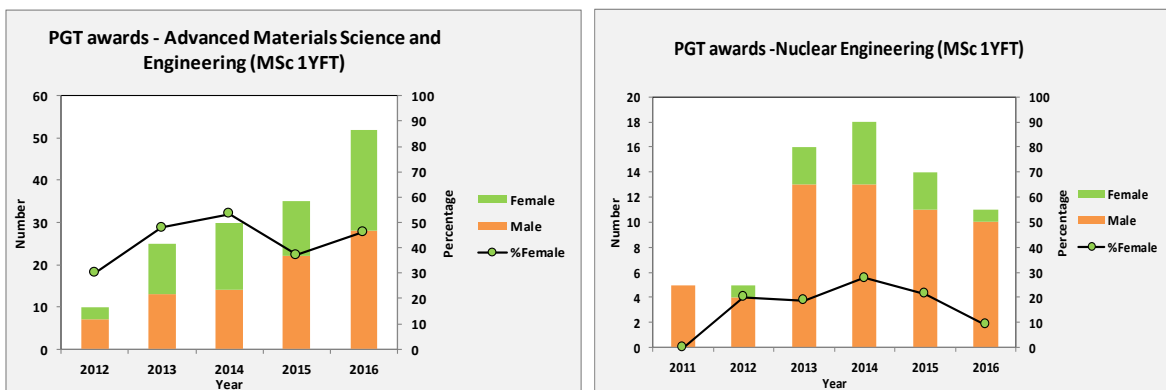


Figure 4.11. Awarded MSc for AMSE (left) and ANE (right), by gender

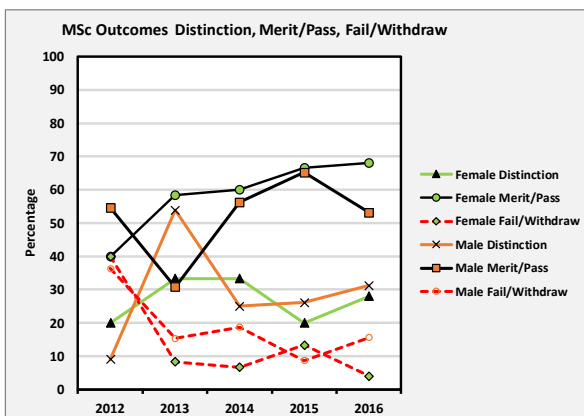
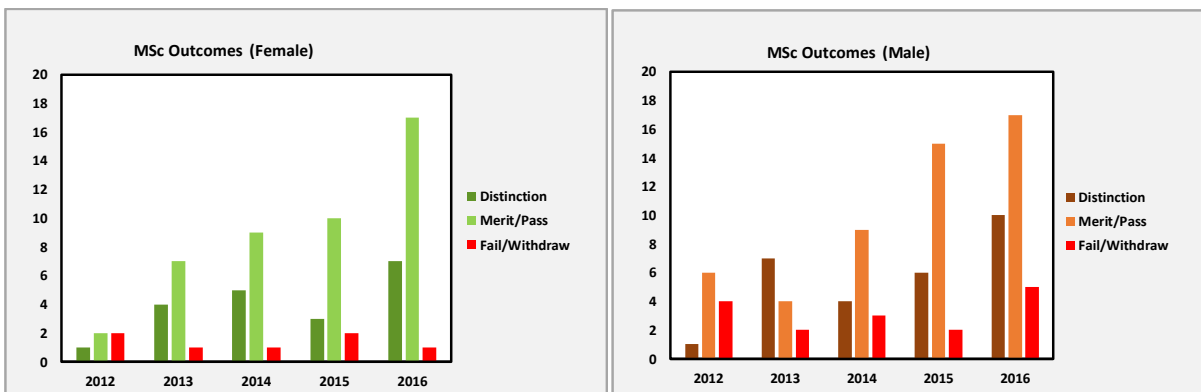


Figure 4.12a Outcomes for students on MSc AMSE course as a function of gender.

Percentage outcomes as distinction, pass/merit and fail, presented as female (out of all females), and males (out of all males)

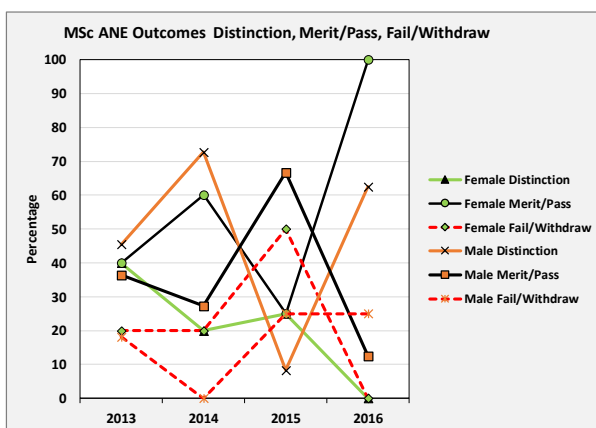
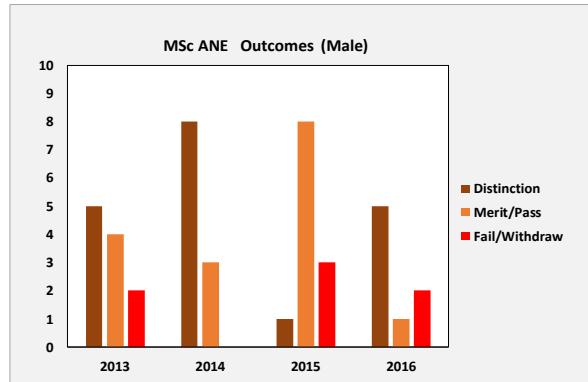
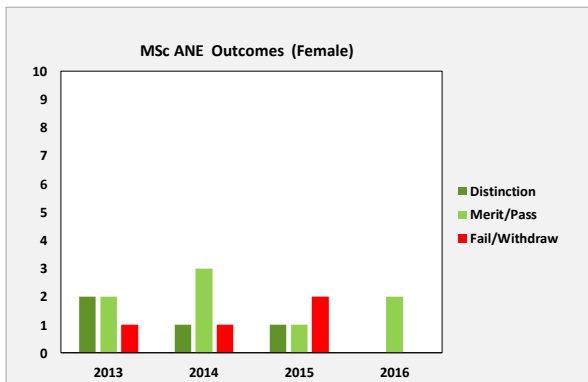


Figure 4.12b Outcomes for students on MSc ANE course as a function of gender. Percentage outcomes as distinction, pass/merit and fail, presented as female (out of all females), and males (out of all males)

(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.

Our PG cohort has a significantly higher female fraction than UG programme, sector average (HEIDI) and Faculty average; of concern is a slight drop in our percentages as absolute numbers have increased, we are continuing to monitor this. Increase at PG is driven by many factors: the intersection of materials between engineering and science attracts people changing disciplines (*e.g.* chemistry), so may counter the effects of our UG requirements in Physics; a high percentage of research-active female role models; and a reputation for research excellence. There is an increase in the fraction of females from application to enrolment reflecting the positive experience female students in particular have at interview.

Action: Improve materials pipeline: increase percentage of female PhD students (AP 2.1)

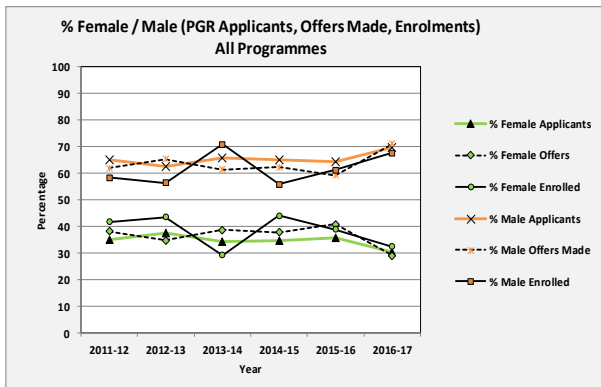
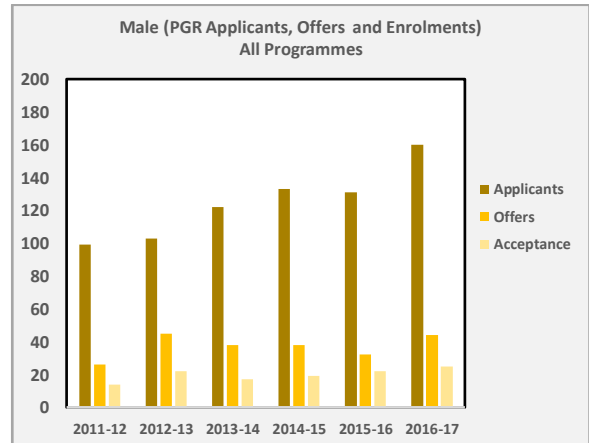
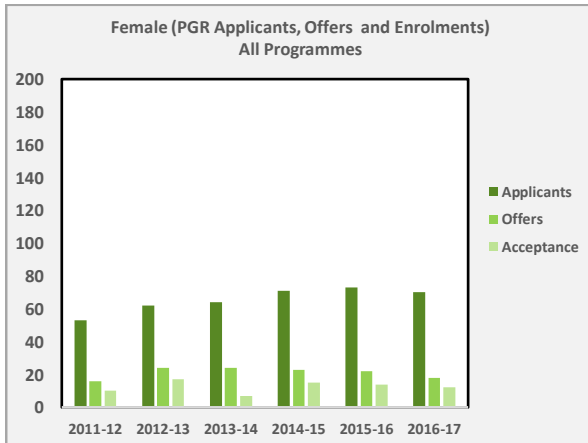


Figure 4.13. Admission to Post-graduate Research programmes: course applications, offers, and acceptances for female and male applicants; data also shown as percentage rates for total applications / offers / enrolments broken down by gender; (data 2011-2016).

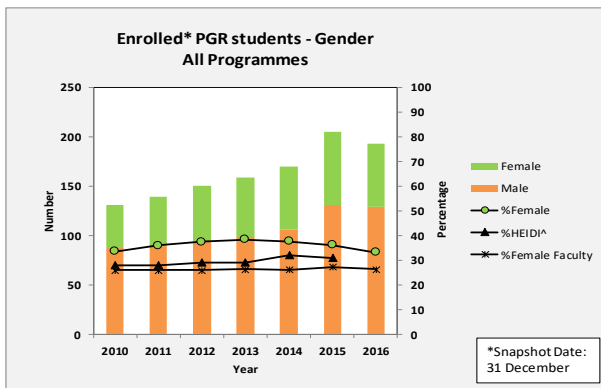


Figure 4.14. Enrolled PG Research students; broken down by gender (^based on JACS Principal Subject: Materials technology. 2016-17 HEIDI data not currently available).

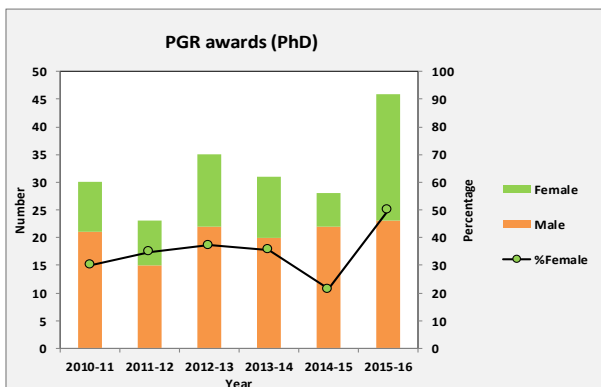


Figure 4.15. PhD Awards from 2010-2016 broken down by gender.

*There is no difference in the probability of successful outcome PhD students vs gender. We support all our students through thesis writing and completion; our submission rate is consistently above 90% (100% 2015, 2016). The apparent drop in 2014-15 does not indicate female students have not completed but is a reflection of the snapshot-timing: data for 2015-16 show a 50% female rate 'making up' for the previous year. The Department median completion time is currently 3.5 years – our aspiration is that *all* PhD students complete within this time period (unless stipulated as 4 years by the funder *e.g.* the EPSRC-CDT). There is no *significant* difference in completion times vs gender: in the last 5 years for students submitting within the 48 months, the average student completed in 43.1 months; female students took on average 0.5 months longer; overseas students took an additional 2.5 months. The DPS is setting up new systems to monitor this (vs origin, first degree, funding, supervisor *etc.*).*

"We are making progress - compared to ten years ago, having *everyone* finish in four years is a transformation that we can be proud of."

Professor David Dye DPS

Action: Achieve 100% PhD completion rate within 3.5 years; monitor completion rates versus gender and fee status. (AP 2.4)

(v) Progression pipeline between undergraduate and postgraduate student levels

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

Our student pipeline shows a reverse trend compared to the traditional leaky model *i.e.* we have *increasing* numbers of female representation from UG to PG. Our current focus is on increasing our pool of UG students by WP programmes, targeting schools, raising awareness of Materials, and building relationships with teachers.

Action: WP through outreach programme with targeted schools. Enable teachers to take materials into the classroom *via* joint preparation of lesson plans and teacher coaching. (AP 1.1)

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.

Imperial College job families and grading system/criteria are shown in the tables below:

Learning and Teaching (Teaching-only)

Level	Position Title	Description
Level 2b	Assistant	Entry level role. Assisting and support work of staff.
Level 3a	Demonstrator Assistant Teaching Fellow	May be entry level role. Assisting and support work of staff. Teaching within existing established programme. May develop e-learning materials.
Level 3b	Teacher Teaching Fellow Lecturer	Early stage career. Teaching may be combined with appropriate organising/managing.
Level 4	Senior Teaching Fellow	Must be experienced in teaching. May involve innovation in course design/delivery. May involve more significant leadership and/or management in department/faculty.
Level 5	Principal Teaching Fellow	Extensive experience and reputation in teaching. Responsible for major areas of teaching activity. Developing teaching at faculty/College level.

Academic (Research and Teaching)

Level	Position Title	Description
Level C	Lecturer	Experienced in research and/or teaching. Contribution spans research, education, and leadership/management.
Level D	Senior Lecturer	Extensive experience in research/teaching. Established national and international reputation. Clear record of impact.
Level D	Reader	Extensive experience in research/teaching. Established national and international reputation. Clear record of impact.
Level E	Professor Chair	Internationally recognized leadership and reputation in research and education. Significant leadership responsibilities in department / College.

Research-Only

Level	Position Title	Description
Level A	Research Assistant	Entry level. Assisting research group / carrying out analyses and tests. Pre-PhD.
Level B	Research Associate	Early stage career. Planning and carrying out research. Post-PhD.
Level C	Research Fellow	Experience in research. Generally will have own research funding.
Level D	Senior Research Fellow	Extensive research experience. Established national and international reputation. Clear record of impact.

Professional, Technical and Support staff

Level	Position Title	Description
Level 1 – a and b	Apprentice Assistant	Straight forward tasks within established routines and procedures. Under regular or direct supervisor.
Level 2 – a and b	Assistant Administrator	Work within established routines and procedures. Minimum day to day supervision. May involve specific responsibility for a clearly defined section of work.
Level 3 – a and b	Administrator Officer Advisor	Detailed understanding of methods, systems and procedures. Requires significant experience and/or formal training. Exercise of initiative and judgment on how to resolve problems.
Level 4	Manager	Full understanding of a technical, professional or specialised field. Plan and ensure progress within established procedures and policy. Expected to identify gaps and resolve problems.
Level 5	Senior Manager Deputy Head	Proven specialist/technical expertise, and/or managing a diverse team. Often involves identifying trends and needs, and generating original ideas. Typically accountable for quality of service delivery.

The 'pipeline' in materials at Imperial is atypical for STEM; *e.g.* we have proportionately *more lecturers than undergraduates*. Key transition points are at UG intake: the pool of candidates is limited by a lack of female students taking A-level Physics and a lack of awareness of Materials; a counter effect at postgraduate level where significant numbers of people change *to materials* from other disciplines.

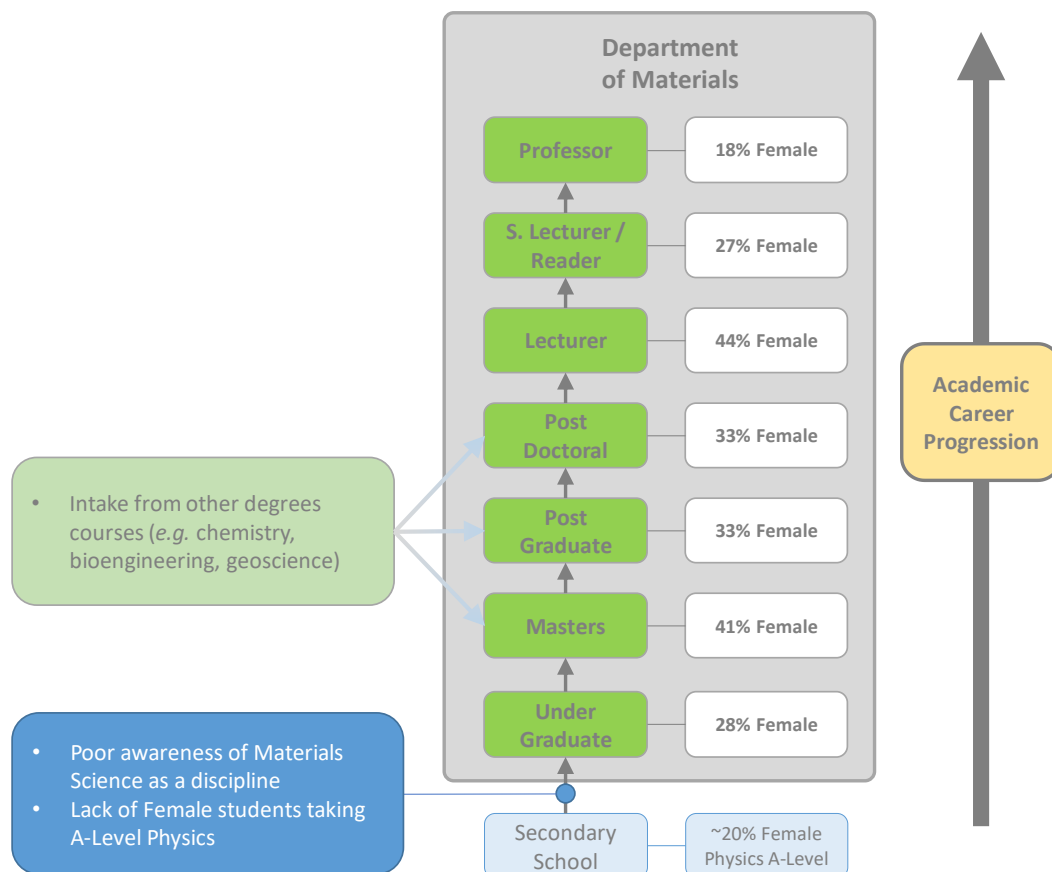


Figure 4. 16. The pipeline for females in Materials at Imperial.

Year	Male	Female	Total	%Female	%HEIDI
2010	11	1	12	8	11
2011	10	1	11	9	10
2012	8	1	9	11	10
2013	11	2	13	15	10
2014	11	2	13	15	8
2015	13	3	16	19	9
2016	14	3	17	18	11
2017	14	3	17	18	-

Table 4.2a. Research and Teaching Staff, Professorial Level for the period 2011-16 (benchmark data based on JACS Principal Subject: Materials Technology).

Year	Male	Female	Total	%Female	%HEIDI
2010	15	7	22	32	26
2011	16	7	23	30	28
2012	17	8	25	32	29
2013	14	5	19	26	28
2014	15	6	21	29	28
2015	12	5	17	29	-
2016	13	6	19	32	-
2017	14	6	20	30	-

Table 4.2b. Research and Teaching Staff, Non-professional Level for the period 2011-16 compared with HEIDI data (L/SL/R levels shown below in Tables 4.1c and 4.1d).

Year	Male	Female	Total	%Female
2010	8	5	13	38
2011	7	3	10	30
2012	7	3	10	30
2013	5	1	6	17
2014	5	2	7	29
2015	4	3	7	43
2016	5	3	8	38
2017	5	2	7	29

Table 4.2c. Research and Teaching Staff, Lecturers Level for the period 2011-16.

Year	Male	Female	Total	%Female
2010	7	2	9	22
2011	9	4	13	31
2012	10	5	15	33
2013	9	4	13	31
2014	10	4	14	29
2015	8	2	10	20
2016	8	3	11	27
2017	9	4	13	31

Table 4.2d. Research and Teaching Staff, Senior Lecturers/Readers for the period 2011-16.

Year	Male	Female	Total	%Female	%HEIDI
2010	26	8	34	24	21
2011	26	8	34	24	21
2012	25	9	34	26	22
2013	25	7	32	22	23
2014	26	8	34	24	20
2015	25	8	33	24	22
2016	27	9	36	25	24
2017	28	9	37	24	-

Table 4.2e. Research and Teaching Staff, All Levels for the period 2011-16 (staff data as for Tables 4.1b and c – for comparison with HEIDI data).

Our F:M staff ratio (academic, all levels) has been maintained at around 25% during Department growth, remaining consistently on par or higher than the sector average. There are themes where female staff are underrepresented (Figure 2.1) and we have actively, but unsuccessfully, sought candidates in these areas and continue to do so. There is a higher proportion of junior female staff (L: 44%, SL/R: 27%, P: 18%); and three female professors in the Department (20%), considerably higher than the sector average (additionally Alexandra Porter has been promoted to Chair from September 2017 –the only professorial-level promotion this year). With the pipeline model in mind, support is given to ECRs and junior staff on start-up and transition to senior lecturer. Two ICRFs (Xie, Mattevi) and one Marie Curie Fellow (Aguadero), made the transition to full academic staff (advertised positions). All academic staff are on open-ended contracts. In the last 5 years only one member of staff has been on a fixed-term contract in place of a colleague who took extended leave to care for her disabled child (she ultimately decided not to return: her position was kept open for 7 years- she currently has visiting scientist status).

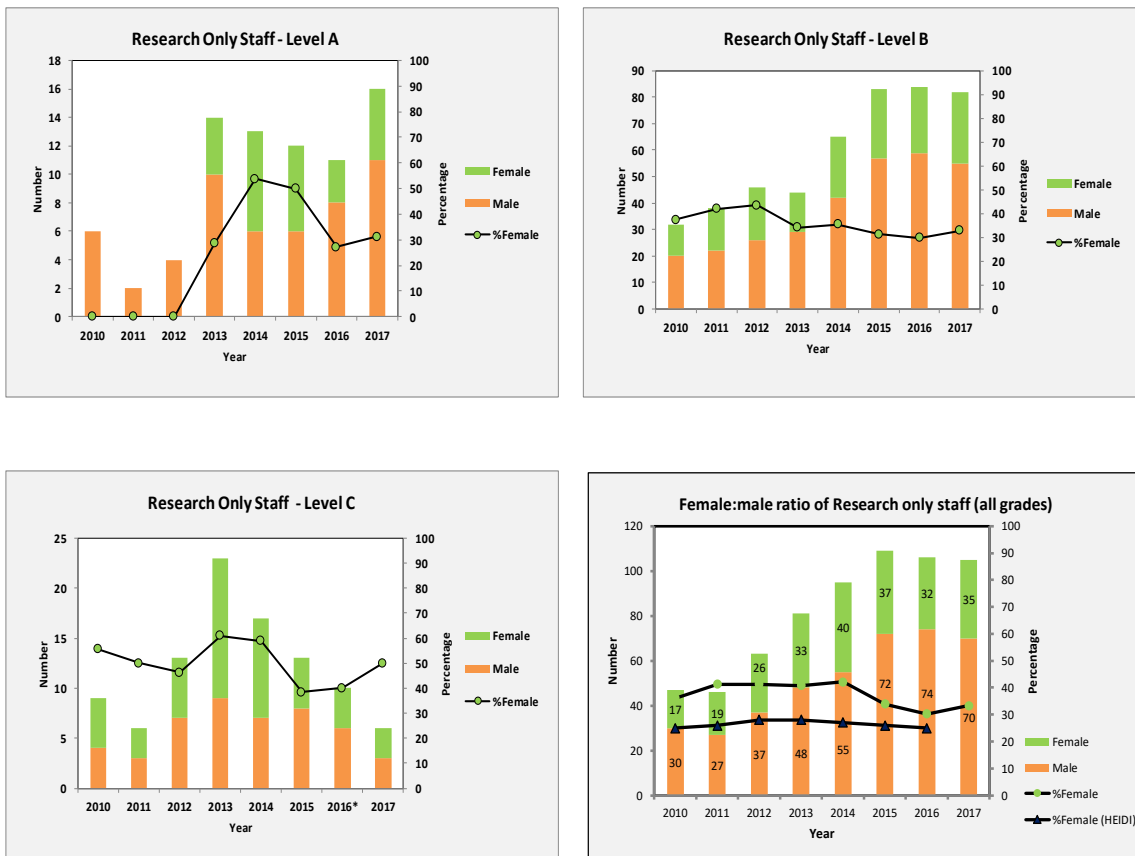


Figure 4.17. Research-only Staff (level A- C) and shown for (all grades A-C) for the period 2011-16, by gender.

PDRA (research-only) staff across all grades is ~35-40% female, significantly higher than the sector average, and higher than *both our UG and PG ratio*. Within grades for research-only staff at higher levels (Grade C, 50%F), numbers are low and there has been a general decrease in the number since 2013, the proportion of females fluctuates, generally between 40-60%. There is only one staff member (M) at level D of the technical scale, a research fellow in nuclear materials.

There are very low numbers of teaching-only staff, and none prior to 2013 (Table 4.3).

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

There are no explicit transitions between technical and academic staff; but technical officers are encouraged to engage with all aspects of the Department. Several members of professional and support staff engage with teaching/training for UG/PG researchers. There are two ROs (1M, 1F) who actively direct research and co-supervise PhDs. Recognition of these activities is given (PRDP) *e.g.* one RO's job title was revised to 'Principal Research Scientist' to recognise independent contributions.

(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.

There are ***no zero-hours contracts for staff in the Department***, and all Research and Teaching staff are on open-ended contracts.

Research-only staff are more commonly on fixed-term contracts related to research projects or time-limited fellowships. *There is no gender bias in the numbers of staff on fixed-term contracts*. There are much lower numbers of research-only staff on open-ended contracts compared to fixed-term appointments; we see annual fluctuations but no significant gender differences.

There are very low numbers of teaching-only staff in the Department, and none prior to 2013. Fixed-term contract positions for teaching-only staff are used primarily to provide temporary cover, *e.g.* maternity leave. Two new permanent teaching fellow positions (2F) were filled in 2014, and a third (1M) has recently accepted a position but not yet in-post.

Year	Male	Female	Total	%Female
2010	25	15	40	38
2011	23	16	39	41
2012	33	23	56	41
2013	44	29	73	40
2014	49	38	87	44
2015	66	34	100	34
2016	67	29	96	30
2017	63	29	92	32

Table 4.3a. Research-only staff on fixed term contracts

Year	Male	Female	Total	%Female
2010	5	2	7	29
2011	4	3	7	43
2012	4	3	7	43
2013	4	4	8	50
2014	6	2	8	25
2015	6	3	9	33
2016	7	3	10	30
2017	7	6	13	46

Table 4.3b. Research-only staff on open ended contracts

Year	Male	Female	Total	%Female
2013	1	1	2	50
2014	0	2	2	100
2015	0	1	1	100
2016	0	0	0	-
2017	0	0	0	-

Table 4.3c. Teaching-only staff on fixed term contracts

Year	Male	Female	Total	%Female
2013	0	0	0	-
2014	0	0	0	-
2015	0	2	2	100
2016	0	2	2	100
2017	0	2	2	100

Table 4.3d. Teaching-only staff on open ended contracts

We have a proactive approach to redeployment of research staff at the end of fixed-term contracts. Staff are contacted 3 months before the contract ends and liaise with DRM, HR and PI to explore funding routes. Open positions within the College are discussed. The PDC also assists in connecting staff and finding new positions.

We support staff who want to pursue careers in STEM - our ECRs have been extremely successful at securing permanent positions in academia and industry.

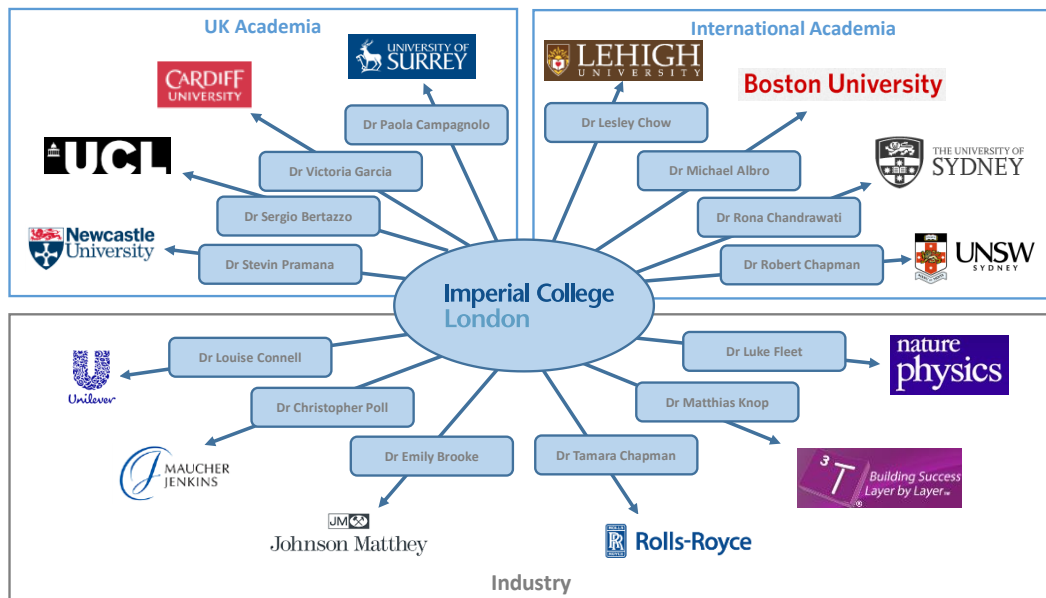


Figure 4. 18 Destinations of some of the early career researcher in the Materials Department.

(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.

Reasons for staff leaving vary by case. Information is collected at the point notice is given and included in monthly summaries to staff. These provide a platform for maintaining awareness of staff changes and for welcoming new arrivals.

Research-only leavers are typically on fixed-term (project) contracts, moving on at the end. The numbers for levels A and C are small and fluctuate; level B research leavers are in line with, or less than, our female cohort.

Year	Research – Level A				Research – Level B				Research – Level C			
	M	F	Total	% F	M	F	Total	%F	M	F	Total	%F
2011	0	0	0	0	5	3	8	38	1	0	1	0
2012	2	1	3	33	13	13	26	50	1	2	3	67
2013	5	1	6	17	15	5	20	25	1	2	3	67
2014	0	2	2	100	11	11	22	50	0	4	4	100
2015	5	3	8	38	9	9	18	50	0	0	0	0
2016	3	1	4	25	20	9	29	31	2	1	3	33

Table 4.4. Academic leavers – research-only staff by grade and gender.

Year	Male	Female	Total	%Female
2011	1	0	1	0
2012	2	1	3	33
2013	0	1	1	100
2014	0	1	1	100
2015	1	0	1	0
2016	0	0	0	-

Table 4.5 Academic leavers – Research and Teaching Staff.

We have a low turnover of academic staff and the majority of these (all bar 1) left to take up positions at a higher level elsewhere, *e.g.* a Senior Lecturer (F) and Reader (M) left to Chair positions at the University of Warwick (2013) and the University of Texas (2014) respectively. In 2012, one female member of staff (on a fixed-term contract) took up a lectureship at Queens University Belfast.

WORD COUNT 2037

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.

Recruitment data are summarised in Tables 5.1-5.3 over the page.

We are committed to achieving gender balance; reflected in our approach to recruitment. We have revised - with central College HR - how we advertise posts to ensure gender neutrality, focusing on the distinctly different approaches that men and women take when assessing suitability for a position; and to highlight opportunities for collaboration and the supportive environment. We have a commitment to ensure our applications include female candidates – an approach that has considerably improved our pool since 2013. Search committees are formed *before* advertising positions to look for appropriately qualified female applicants and encourage them to apply.

Action: The Department to keep a pre-emptive list of possible outstanding candidates to facilitate search committees. This will be managed by themes. (AP 3.1)

This approach, is already having impact and we are attracting well-qualified female applicants. Of total applicants for recent academic positions, whilst only 10% were female, **33% of appointments were female** – of the 23 academic positions advertised since 2009, 12 male and 6 female members (5 positions were unfilled due to lack of appropriately qualified candidates at advertised level). We mentor research fellows in the Department to positions at Imperial and elsewhere. Three staff hired as lecturers level (2M, 1F) have been mentored here, developed independent research groups and supported to apply for permanent positions. Some research areas within materials have a lack of female representation (Figure 2.1) and search committees were set up in recent hiring rounds (post 2014) to try to identify suitable candidates. We found a lack of candidates within the community, particularly for senior level appointments. We plan to address the pipeline through identification and mentoring of junior academics through Research Fellowships and subsequent support for academic positions.

Action: Identify outstanding young candidates and sponsor them for Fellowship Applications. Provide active mentorship for academic roles at Imperial and elsewhere. (AP 3.1)

Our interview process has been reviewed to account for all aspects of candidate's ability, and to include the whole Department in the process: a research seminar open to all; teaching assessment with feedback from students, a student panel, interview with academic staff with at least one female representative. We note that in all cases where females were on the shortlist, at least one female was offered a position, and chose to join the Department.

We hire a higher proportion of females than apply. The data show that we consistently have 25-30% female applications for research-only positions (at junior levels A and B; at higher levels there are currently very low numbers of positions). Of concern is a decrease in the percentage that get shortlisted – but once shortlisted the females are more likely to be hired. As with all levels our priority is to increase application pool by outreach and mentoring of individuals.

There is an increase in female ratio from application to shortlisting to hiring for teaching-only posts (the numbers are relatively small, as is the timeframe over which we have had these positions).

In order to attract female applicants, we promote the diversity of our Department (i) on the website, (ii) in the building *via* dedicated displays highlighting achievements of women in materials, (iii) around College, and (iv) in our affiliate centres (*e.g.* 2 female staff from Materials on front page of the LCN website). At interview stage all panels have at least one, but typically more, female member, and we ensure all 'social' events associated with recruitment are gender-balanced.

To further good practice at the shortlisting and interview stage, unconscious bias training is provided for staff involved in recruitment. There has been an unconscious bias-based academic staff meeting and awareness continues to improve; formal training is being rolled out for all staff (and students).

Action: All staff (academic, research, support and professional) to have completed unconscious bias training and include as a mandatory part of our induction process for all new recruits. To be rolled out to our PhD and UG student communities. (AP 4.3)

Grade/Level	Total Applicants					Shortlisted					Accepted				
	No Data / Did Not Want to Disclose	Female	Male	TOTAL	% Female	No Data / Did Not Want to Disclose	Female	Male	TOTAL	% Female	No Data / Did Not Want to Disclose	Female	Male	TOTAL	% Female
Research Fellow*	0	1	28	29	3%	0	0	1	1	0%	0	0	1	1	0%
Lecturer	2	34	253	289	12%	0	6	25	31	19%	0	6	5	11	55%
Senior Lecturer	0	2	4	6	33%	0	0	3	3	0%	0	0	1	1	0%
Reader	0	0	0	0	0%	0	0	0	0	0%	0	0	0	0	0%
Senior Lecturer / Reader	0	0	1	1	0%	0	0	1	1	0%	0	0	1	1	0%
Professor / Reader	0	0	16	16	0%	0	0	5	5	0%	0	0	1	1	0%
Professor	0	0	12	12	0%	0	0	0	0	0%	0	0	0	0	0%
All levels (open call)	0	7	61	68	10%	0	0	6	6	0%	0	0	3	3	0%
TOTAL	2	44	375	421	10%	0	6	41	47	13%	0	6	12	18	33%

Table 5.1. Research and Teaching posts: number of applicants, shortlisted and appointed; by gender. Total in period 2009-2016. *duties equivalent to lecturer

Grade/Level	Total Applicants					Shortlisted					Accepted				
	No Data / Did Not Want to Disclose	Female	Male	TOTAL	% Female	No Data / Did Not Want to Disclose	Female	Male	TOTAL	% Female	No Data / Did Not Want to Disclose	Female	Male	TOTAL	% Female
Research - Level A	4	53	147	204	26%	0	8	37	45	18%	0	5	16	21	24%
Research - Level B	22	539	1316	1877	29%	0	44	127	171	26%	0	25	42	67	37%
Research - Level C	0	3	26	29	10%	0	0	1	1	0%	0	0	1	1	0%
Research - Level D	0	0	1	1	0%	0	0	1	1	0%	0	0	1	1	0%
TOTAL	26	595	1490	2111	28%	0	52	166	218	24%	0	30	60	90	33%

Table 5.2. Research-only posts: number of applicants, shortlisted and appointed; broken down by gender - total in period 2014-2016 (note prior to this date applications data was not collected by grade differentiator).

Grade/Level	Total Applicants					Shortlisted					Accepted				
	No Data / Did Not Want to Disclose	Female	Male	TOTAL	% Female	No Data / Did Not Want to Disclose	Female	Male	TOTAL	% Female	No Data / Did Not Want to Disclose	Female	Male	TOTAL	% Female
level 3A	0	24	48	72	33%	0	8	8	16	50%	0	6	4	10	60%
Level 3B	0	12	16	28	43%	0	5	3	8	63%	0	3	0	3	100%
Level 5	0	4	14	18	22%	0	0	6	6	0%	0	0	1	1	0%
TOTAL	0	40	78	118	34%	0	13	17	30	43%	0	9	5	14	64%

Table 5.3. Teaching-only posts: number of applicants, shortlisted and appointed' broken down by gender. Total in period 2014-2016 (posts introduced in 2013).

(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.

In addition to formal procedures detailed below, we have put in place measures that ensure new arrivals feel a part of the fabric of the Department and rapidly develop a network of collaboration and support. *E.g.*, new academics are introduced to their colleagues in weekly informal coffee mornings. Each member is assigned an academic mentor and is embedded within a research theme, providing discipline-related support, and establishing a channel of communication to/from all Department committees. Staff are given an 'induction pack' of information needed about the Department and College; this is updated based on feedback from new starters and as new policies come into place. Feedback is collected individually *via* PRDP process with the HoD and as part of staff meetings. For example, at the 2015 academic staff Away Day, recent academic hires were asked for feedback which included: '*I would have been happy to receive an induction about teaching to better understand the teaching structure (e.g. exams, setting exam questions, marking, double marking, etc...), important dates during the year and teaching philosophy of the Department*'. A new process was introduced (2015) whereby the DRM, introduces new staff to key staff in the Department (*e.g.* PG team, DoR, DUGS, departmental safety officer *etc.*). For staff arriving from overseas we explicitly discuss differences in the UK landscape and regulations. New academic staff are provided with a Departmental (DTA) studentship in their first year and assistance with lab set-up. Since 2016 the Induction Pack also includes our Code of Conduct.

Action: New staff to meet with a member of the Athena SAT committee at the start of their appointment, who will introduce Athena actions and departmental culture (*via* the code of conduct). This will be repeated at 6 months and 1 year. (AP 3.4)

The College provides compulsory courses centred on teaching, tutoring and supervision, and optional professional development courses which we promote *via* regular communications, nomination of staff for particular courses and discussion of training needs at PRDP. In addition, new academic staff have a limited teaching load, and peer evaluation of lectures is used to provide rapid feedback and support. To build confidence in leading small-group teaching, junior staff shadow a more senior colleague in their first year.

(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.

Promotion Type	Female			Male			Overall
	Approved	Not Approved	% success rate	Approved	Not Approved	% success rate	% female
Professor	3	0	100	5	0	100	38
Reader	4	0	100	8	0	100	33
Senior-Lecturer	5	0	100	12	0	100	29
	-	-	-	-	-	-	-
Total	12	0	100	25	0	100	32

Table 5.4. Research and Teaching promotions broken down by grade and gender. Total in period 2009-2016.

Promotion Type	Female			Male			Overall
	Approved	Not approved	% success rate	Approved	Not approved	% success rate	% female
Level C	1	0	100	4	0	100	20
Total	1	0	100	4	0	100	20

Table 5.5. Research-only promotions broken down by grade and gender. Total in period 2010-2016. Note that promotion in this banding is unusual and numbers are small.

Teaching-only: there were no promotions in the period 2010-2016 (note that teaching-only positions were only introduced in 2013).

All staff (male and female) put forward for promotion since 2010, have been successful. Support includes a formalised mentor to help with paperwork, preparation for interview and selection of referees.

Feedback to the SAT from academic staff was that, especially for junior staff, the promotions procedure was 'opaque'. The procedure was reviewed in 2015 and again in 2016; modified for greater clarity and transparency; and to ensure that ALL staff are now considered. The HoD emails all staff detailing the process and timings, and offers advice. Each theme representative meets with staff to discuss the process, and feeds back to the promotion committee. The committee now includes representation from all academic staff levels to ensure transparency. The document text was also reviewed for gender neutral tone; reviewed at the SAT and with departmental leadership.

Action: Improve transparency around promotion process and formalise role of peer review in promotion. (AP 3.3)

For promotion, a Student On-Line Evaluation (SOLE) of teaching by the UG cohorts has typically been used at College level as a metric for teaching performance. We have assessed the SOLE responses and found significant imbalance in both response tone and numerical value for junior female staff; in addition, gender specific comments are common in female returns, and female staff compared to each other. *E.g.* (2015) across all levels the average numerical score was **3.9/5** for female *versus* **4.3/5** for male lecturers; of the 10 *lowest* rated modules 4 were delivered by women (versus a 20% fraction of modules delivered by females). To counter this, peer evaluation will now take a more prominent role in our promotion exercise, and students will be given unconscious bias training: first year students were trained March 2017, and will be rolled out for all students, and subsequently included at induction. *Our analysis has inspired College to carry out a wider survey of SOLE response w.r.t. UG attitudes to gender.*

Action: Formalise role of peer review in promotions procedure and raise student awareness to unconscious bias in SOLE responses. Increase support of junior staff for teaching practice. This is supported at Faculty level. (AP 3.3)

(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.

	FTE Eligible Staff	% Eligible Staff Submitted	% Female Of All Staff Submitted	% Female Submitted Of All Women	FTE Eligible Staff Not Submitted	% Eligible Staff Not Submitted (F)
RAE 2008	31.65	85	26	81	4.65	*34% (2 staff members, 1.6 FTE)
REF 2014	37	100	27	100	0	0

Table 5.6. REF (2014) and RAE (2008) submission broken down by gender.

2008 RAE: 4.65 FTE research inactive staff not submitted, of whom 34% (by FTE) were female. *These were two individuals, one was on 0.6 FTE and approaching retirement and had decided to focus on teaching. The other was a junior researcher who subsequently left for a job in industry. Post-2008 our goal was to have 100% submission rate and in 2010 we reviewed the cases for staff not submitted in 2008. The analysis showed that support given to junior staff was insufficient, and processes for monitoring and intervention were not working. We revised mentoring for new academics and continue to monitor progress, *via* annual appraisals (PRDP).

2014 REF: *all staff were submitted*, of those 7 FTE were ECRs, of which 43% were female, a significant increase for our junior staff ratio from the 2008 RAE in line with our department growth.

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.

Induction is carried out for all staff with the DRM and their line-manager. And the HoD welcomes all staff. The DRM discusses support and training activities. Following feedback from new starters an induction pack was created for professional and support staff; this is updated annually with new information and policies about the Department and College. Each member of staff discusses training needs with their line-manager and this is reviewed annually at the PRDP.

“My first day induction was very thorough: a tour of the department, meeting staff members, tour of the food places! Darakshan (DRM) went through contract and employment details with me. I was given two ICIS training sessions which were very good and relevant to my role, and further as needed. On an individual level Sonia (Line-manager) sat down with me and went through internal processes. The support was (and still is) very thorough “

Catherine Graham, Professional Staff, started 2016

(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.

JLR Type	Female Candidates			Male Candidates		
	JLR Approved	JLR Not Approved	Success Rate	JLR Approved	JLR Not Approved	Success Rate
Level 2b	1	0	100%	0	0	n/a
Level 3a	1	0	100%	2	0	100%
Level 3b	1	0	100%	0	0	n/a
Level 4	3	0	100%	0	0	n/a
Level 5	0	0	n/a	1	1	50%
Total	6	0	100%	3	1	75%

Table 5.7. Professional and support staff Job Level Reviews (‘promotions’) broken down by grade and gender. Total in period 2010-2016. All cases were supported by the Department.

For support staff there is not a standard promotion pathway: a Job Level Review (JLR) process defines changes in the role that an individual is performing. One application was from Level 4 to Level 5 (1 M) in 2011 was unsuccessful as the College deemed the role did not meet Level 5 criteria. The panel recommended a discretionary increment to recognise the growth in the role.

The JLR process occurs termly. The process is communicated from Faculty (to the DOM) and circulated to all line-managers. Reviews are discussed with individuals as part of PRDP assessments.

An application form detailing the reasons for the JLR is completed, largely by the line-manager, with input from the individual being put forward. A supporting statement is provided by the HoD and a new organisation chart developed by the DOM. All paperwork is checked by the DRM and DOM and approved by the HoD before submission.

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?

Imperial has an established Learning and Development Centre (LDC) with programmes for all staff level. These range from workshops for new staff (several are compulsory) to Senior Academic Leadership Programmes, and programmes specifically for female and BAME employees. Specialist courses (*e.g.* EPSRC, Royal Society) are circulated/targeted to relevant staff if appropriate.

Where challenges are identified but an 'off-the-shelf' course does not exist, the Department aims to find bespoke training. *E.g.* a female staff members was struggling with teaching largely because of a lack of audibility and confidence. The HoD arranged for a voice/drama coach (2015): she has seen marked improvements in teaching scores.

Training for postdoctoral research staff is delivered by the College Postdoc Development Centre (PDC). PDRAs at Imperial have a contracted 10-day training allowance per year which they are encouraged to use. In 2013 we set up a one-day postdoc symposium, where PDRAs present their research to external visitors from industry and representative from leading scientific journals. This presents excellent networking opportunities and has been praised by our PDRA community.

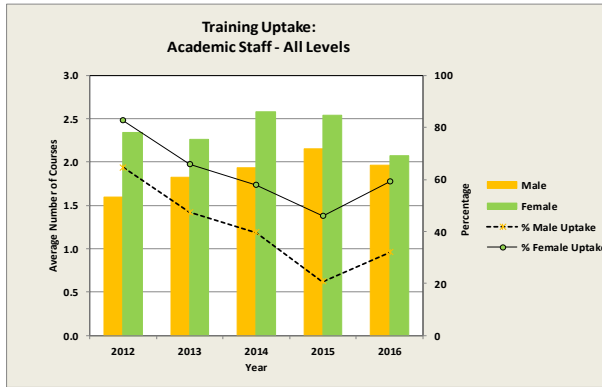


Figure 5.1. Training courses uptake for academic staff: shown as percentage of male/female staff taking training courses, and the average number of courses taken by individual staff (M/F). (Data 2012-2016)

Data in Figure 5.1 show 2 important points: i) we reviewed uptake in 2015 following decreasing levels - and took action - an improvement was observed for 2016 as a result of focus on training in PRDPs for staff, and direct encouragement by the HoD; ii) Male uptake of training is consistently lower than female staff, the reasons are unclear and require further study, and potential action to encourage participation.

Action: Assess uptake of training courses by academic staff (especially low M uptake). Promote and monitor (both internal and external) training for staff. (AP 3.5)

(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.

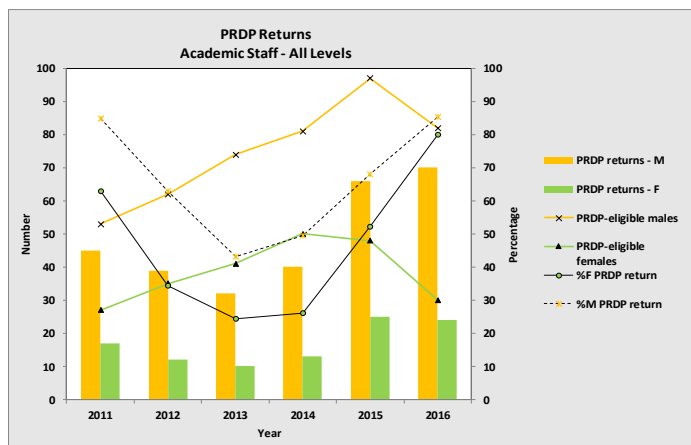


Figure 5.2. Staff appraisal for academic staff (all levels): shown as percentage of male/female staff returns. (Data 2012-2016)

In the period 2011-2016 **100% of academic staff** were reviewed by the HoD through one-to-one PRDP ensuring consistent performance appraisal. For joint appointments both HoDs are present for the PRDP so that *all* activities across Departments are captured and recognised (and load is adapted appropriately). The process provides reflection of the previous year's activities, feedback, review and goals for the next year. Advice on career progression / promotion is also given with key actions defined. For junior staff in their probation period the academic mentor is invited to attend reviews and provide further feedback. We are aware that the mentor-mentee relationship is critical and so PRDPs are used as an opportunity to ensure this is working: staff can request a different mentor who may be able to help more directly with specific issues identified.

"After 10 years in the department, I felt somewhat overwhelmed by increasing responsibilities. The Department provided an external consultant to help me refocus on my research goals and balance my time effectively. They also provided opportunities to take on research-centred projects, and the outcomes have been really positive and invigorating."

Dr Sandrine Heutz (Reader)
AMSE MSc Director

For PDRA (research-only) the line-manager is responsible for ensuring completion of the PRDP. Following an analysis in 2014 we recognised that PRDP return rates were poor (e.g. in 2013, only 1F and 5M PDRA's returned), although informal reviews were taking place; we set a target for 100% return. Promotion of the exercise by the HoD, and extensive reminders to PDRA's and line-managers were sent; and PRDP returns from their research staff will now be reviewed in academics'/line-managers' own PRDPs. In 2015 and 2016, the PDRA return rates improved considerably. We are revising policies to ensure *all* staff are appraised: monitoring of returns, ensuring that PDRA's are aware of the opportunity and benefits of this process; an annual census date, and better communication to academic staff. The HoD is engaged in the process and reads every completed PRDP: he can address any issues as they arise, or congratulate staff on achievements. The PDC at Imperial also acts as a central provider of guidance and feedback.

Feedback about the PRDP process was solicited from all staff (PRDP survey): some indicated that the forms were not 'user friendly'. To address this, we now allow staff modify the form to best suit their position, provided the focus remains on the previous year's work, plans and objectives for the forthcoming year.

Action: Achieve and maintain 100% participation in annual review process for all staff. Return rates of PRDPs with research / professional staff will be an item for academic staff PRDPs with HoD. Annual review of PRDP process and format for all staff to ensure optimal benefit. (AP 3.7)

(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.

All academic staff have a mentor who advises on career progression, and assists in promotion exercises by providing feedback, help with choosing referees, practice interview *etc.* Staff are embedded in themes that provide a support network. The ROM and DoR provide guidance with proposals, fellowship applications and external prize nominations.

Action: Improve mentoring of junior academic staff for career progression. (AP 3.6)

As a key career transition point we have reflected on the support we give to our PDRAs. The previous HoD engaged the PDRA community *via* a series of meetings and open discussions; held 6 monthly in the Department. The first observation was that they did not feel they had a voice in the Department, and were not given the level of support they felt other groups, such as PhDs students, had. We addressed this by:

- Creating a postdoctoral mentor (Natalie Stingelin (2014-2016), Ainara Aguadero (2016-present) who convenes quarterly meetings and feeds back to DMC and RC. The Faculty of College has subsequently adopted this policy and all departments have 'post-doc champions'. PDRAs were provided with Department funding to run activities and programmes; and initiated a departmental PDRA research symposium. Representation by PDRAs on the Athena SAT led to

"The postdoctoral research symposium allows postdocs to celebrate achievements, share ideas, and make new connections. It provides a forum where the opinions of postdocs from across the Department are heard; we solicited feedback about how the Department can improve, and what the postdoc community needs. A highlight was a Q&A session with our young lecturers who spoke on career failures. This session provided both easily implemented career tips, but also some much-needed perspective on the issue of rejection".

Dr Sam Humphrey Baker, PDRA rep (2015)

discussion about mentoring for PDRAs and this has been taken forward. In collaboration with the PDC, in 2016, we set up a pilot scheme for formalised – but voluntary – mentoring of post-doctoral staff by academic staff members.

- Fellowship opportunities: we have increased transparency and communication on how schemes are run, supported and selected by the Department. A presentation on the different schemes was given at the first 'all-staff' meeting and information is now centralised and easy to access. Claire Tibble (ROM) runs information sessions for PDRAs considering applying for fellowships. These sessions are designed to clarify the differences between schemes, submission processes, and includes a PDC consultant with expertise in fellowship applications. Successful fellows in the Department are also invited to answer questions about their experience. When fellowship applicants are identified they are given help in scoping and writing applications, and mock fellowship interviews are run. This has direct results; of the seven ICRFs in FoE this year, two (1M,1F) were internally supported by these Materials programmes.

Action: Review PDRAs mentoring programme and extend pilot; and develop workshops on fellowships (AP 3.2)

(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).

UGs have a tailored personal development programme, which encourages them to think about career paths, internships and CV preparation. They have access to College Careers service, which runs sessions within the Department. A series of industry talks is given each year by companies e.g. Shell, BP, Rolls Royce (these send gender-balanced teams).

A series of lunchtime seminars by staff was developed in 2015-16 following discussion with the Athena SAT (suggested by our UG rep) in response to student wanting more interactions (AP1.4). It is coordinated by the students. This provides them with insight into the academic career and the research activity in the Department. These talks are well-attended, typically between 50 and 80 students. Following the success of this scheme the PhD students have requested a similar format.

Action: Integrate UGs with the Department as a whole; create events for all staff and student. (AP 1.4).
Implement, with PG community, Materials Seminar Series for Postgraduate students. (AP 2.2).

MSc courses run a combined 'Career Day' with a number of industrial and academic guests. PhDs are supported *via* the College Graduate School and through residential career planning courses (2nd year CDT). We run a departmental PhD research day, organised by the students, in a mini-conference style with talks and posters. All academic staff attend and industrial collaborators invited.

A "Weekly careers events update" is disseminated to students.

Action: Improve supervisor-PG experience – provide 'best-practice' for all. (AP 2.3)

(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.

Several layers of support are available to *all* staff. Firstly, staff are informed of recent calls for funding (ROM), and staff are encouraged to apply for appropriate calls (DoR). Fellowships are advertised and candidates identified.

New staff work with their mentor on developing proposals and the DoR also offers to read/review proposals. Two junior lecturers worked with an external consultant (paid for by the Department) to prepare ERC grants this year, one has been invited to interview. Help is given with costing the proposal and making industry contact/supporting partners. We work directly with the College Corporate Partnership Team to engage new lecturers with industry contacts. Preparation for interviews are led by the mentor or DoR. All researchers have an opportunity to meet research council representatives (*e.g.* EPSRC, NERC, Wellcome Trust) *via* a number of scheduled visits, coordinated by the Faculty's Research Strategy office. The departmental ROM facilitates one-to-one meetings to ensure that more junior/underrepresented staff get allocated time.

Following PRDPs, those in need of help in submitting proposals are given extra support including a review panel / proof-reading / one-to-one help *etc.*

	Female	Male
Average number of proposals submitted over the last 3 years (Success rate)	28 (32%)	8 (24%)
Average total value of proposals submitted over the last 3 years (Success rate)	£6.2M (29%)	2.0M (32%)
Average proposal size by value	£243k	£246k

Table 5.8 Grant applications and success rates (all funders) over the last three years

Female staff in the Department submit similarly ambitious proposals (same average value), but on average submit *more* proposals than males. Success rates are similar for M:F depending on the measure (for number of grants females are more successful). In order to improve success rates we collectively share best practice, internal peer review and assessment to ensure 'big ideas' are properly framed. Examples of successful proposals, reviewer responses *etc.* are available to all staff.

Action: Improve support for early career staff. Set up regular proposal workshops: monitor impact on submission and success rates. (AP 3.6)

We are aware of the challenging and highly competitive nature of research funding: staff who are actively submitting, but are unsuccessful, have their efforts recognised and valued during the PRDP.

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?

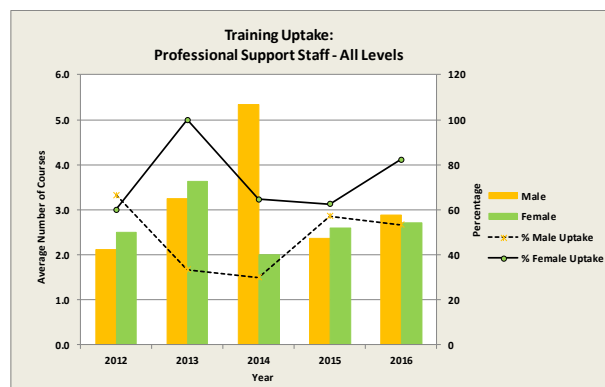


Figure 5.3. Training courses uptake for professional and support staff (all levels): shown as percentage of male/female staff taking training courses, and the average number of courses taken by individual staff (M/F). (Data 2012-2016)

Training is identified *via* discussion between staff and line-manager, we encourage staff to access training programmes to support their work and career progression. Most courses taken in-house *via* Imperial College Staff Development Centre if available, but we provide funds for external courses. ROs have independent travel budgets to allow them to attend relevant conferences or lab visits, to stay up to date with new scientific/technical developments.

In 2012, the DRM took part in the Pathways to Management Leadership Programme (Level 5, credited by the Chartered Management Institute) after recommendation by her Line Manager, and funded by the Department. As part of the course, she completed a project within the department, to establish training programmes for the professional and support staff to enable them to:

- *Develop self-awareness*
- *Acquire new skills/knowledge*
- *Work towards personal development*
- *Achieve successful outcomes/satisfaction*

The DRM carried out surveys of staff in relation to training needs, identified that training was 'reactive' rather than enabling, and set up bespoke courses for department staff (*e.g.* in spreadsheet/database management) which were well-received (*via* PRDP feedback). She continues to advise staff on training needs and requirements and received her diploma in 2013.

"In 2015, I took part in the IMPACT course, IMPACT (Imperial Positive About Cultural Talent) is a development programme for BAME employees. As part of the course, my group worked on 'Co-Action': a project we initiated focusing on helping those who wish to further their careers by giving feedback and recommendations on applications and interview techniques. This scheme is still running, supported by the Dept., College and the LDC."

Mrs Darakshan Khan, DRM

(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.

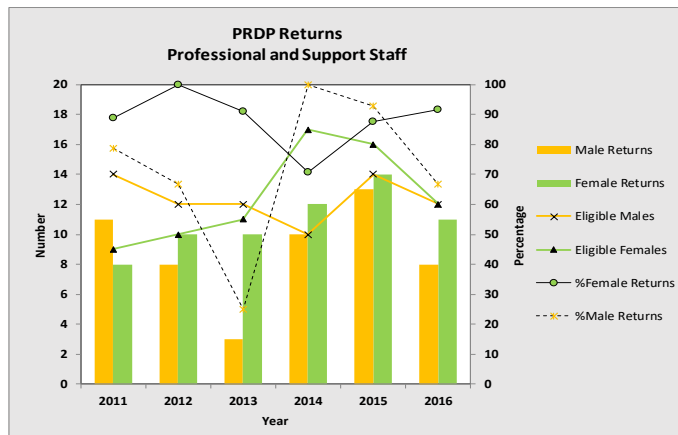


Figure 5.4. Staff appraisal for professional and support staff (all levels): shown as percentage of male/female staff taking training courses, and the average number of courses taken by individual staff (M/F). (Data 2012-2016).

Professional and support staff are reviewed annually by line-managers. Return rates are consistently above ~ 70% (except for the male return in 2012-13, when absolute numbers were low and turnover higher than usual). We are targeting 100% staff return, and line-managers are required to provide information on conducting PRDPs at their own appraisal.

Professional staff are supported by numerous schemes including mentoring and the College Coaching Academy. Shadowing or secondment opportunities within other Departments or at College level are encouraged and several of our professional staff have moved on from these to more senior positions in the College.

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.

Once pregnancy is declared staff meet in private with the DRM, who explains options and directs the staff to support structures within College. For pregnant staff on experimental programmes they are asked to meet their line-manager and safety officer to assess work, and to provide extra risk assessments/reassurance. *E.g.* one PDRA was working on a project involving Uranium: a PhD student carried out the experimental part and the PDRA continued her research, focusing on data analysis. This staff member returned following maternity leave and currently works flexibly.

Flexible work and travel arrangements are routinely offered before maternity leave, *e.g.* one PDRA was pregnant with twins and finding it difficult to travel; her line manager encouraged her to work from home, and the department facilitated alternative transport.

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

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

During parental leave staff responsibilities are covered by colleagues. Before leave they liaise with their academic advisor / line-manager to ensure projects are managed. There is a compulsory second supervisor for all PhDs who ensures the project continues with appropriate support. Contact with funding managers (*e.g.* Research Councils) is managed by the ROM during these periods if required: we have noted that there is disparity in the way that different councils treat maternity leave and have raised this with them at senior College level (*e.g.*, NERC required a project when they had been informed that the PI was on maternity leave, no flexibility or extension was given). The Department reviews all funding bodies and does not engage with schemes that do not support/cover periods of parental leave. The Department supports keeping-in-touch days to allow staff to maintain contact with research groups, attend seminars or staff meetings *etc.* These are monitored by the DRM and either paid or recuperated *in lieu*.

Staff have requested more advice in how to manage a research group whilst on leave and better procedures, policies and support are being developed.

Action: Develop and implement systems to assist in management of research group whilst on parental leave. (AP 3.9)

(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.

A range of support mechanisms are offered including flexible working and help with childcare access and costs.

We created a new fund for staff with caring responsibilities to attend conferences / training programmes, to cover extra costs associated with child-care *etc.* These small grants have been helpful for staff returning from maternity leave, they are available to all staff members (*e.g.* those with elderly relatives). This is in line with our 'better for everyone' ethos in developing our diversity policy. The scheme is

"The carer fund enabled me to attend Biobone Symposium 2015 in Spain. With the support of a carer I was able to give a talk, attend other lectures and the conference dinner – while maintaining my family's routine. Attending was an important event in my career: I was able to meet with colleagues to discuss ongoing projects, share ideas and talk about papers. It was also an excellent opportunity to network with international experts in the field."

Dr Esther Garcia-Tunon, PDRA

advertised on our website and communicated to staff regularly (DRM); a short application form is reviewed by the SAT. In the first year this programme 4 awards were made, all for child-care related travel (3 academic staff, 1 PDRA) and have been positively received.

Action: Actively promote Carer's fund in the Department, monitor uptake and satisfaction with the scheme. (AP 3.9)

The College Elsie Widdowson Fellowships for staff returning from parental leave are fully supported. It provides 1 year cover to allow relief of teaching and administration duties. All eligible staff are encouraged and helped to apply, and the funds are used flexibly to the best advantage of the staff member. In some cases, this scheme has also allowed the extension of postdoctoral staff within the group. This has multiple benefits: it allows the continuity in research by maintaining research staff, allows them to return to the course they have previously taught, and also allows the PDRA to gain teaching experience. Large administrative jobs are reassigned, thus providing longer term flexibility for the staff. In addition, College has a range of initiatives including the campus nursery, free childcare vouchers, the parents network and workshops for new parents.

The Department also encourages staff to take full advantage of the College's partnership with My Family Care, a dedicated service for employees with caring responsibilities. The Department covers the cost of one day of back-up care.

The Department is aware that some social events (*e.g.* the Gala Dinner, Inaugural Lectures *etc.*) take place outside normal working hours (09.00-17.00) and that staff with caring responsibilities may find it difficult to attend or need to arrange childcare. We reimburse costs of any child or adult care so that staff are not disadvantaged. Seminars

start at 4 pm (latest) so all members can attend, and events are recorded for remote/late viewing.

(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.

Leave Type	Maternity Leave	Paternity leave
Professor	1	0
Reader	2	2
Senior Lecturer	1	2
Lecturer	0	3
Total	4	7

Table 5.9. Parental leave requested by research and teaching staff (2011-1016)

Leave Type	Maternity Leave	Paternity leave
Research – Level C	2	0
Research – Level B	7	7
Total	9	7

Table 5.10. Parental leave requested by research-only staff (2011-1016)

Teaching-Only

No requests for parental leave were received by Teaching-only staff in the period 2011-2016.

Shared Parental and Adoption Leave

No requests for shared parental leave or adoption leave were received in the period 2011-2016.

	Academic Staff	Research-only Staff	Professional and Support Staff
Number of requests for Maternity leave	4	9	2
Number returned to work and in post 12 month later	4	9	2
Number currently in post in the Department	4	5	2

Table 5.11. Return to work following maternity leave in the Dept (2011-1016).

Thirteen maternity leave requests were received during the period 01 January 2011 to 31 December 2016: four requests by Academic staff and nine by Research-only staff. 100% remained in post 12 months after returning and 84% remained in post 18 months after returning. Two Research-only staff left at the end of their contracts (i.e. <18 months) to take up Lectureships (Manchester and Liverpool).

Two requests for maternity leave were received by Professional and support staff during the period 01 January 2011 to 31 December 2016. Both staff members returned from maternity leave (April 2013 and March 2016) and are still in post.

There were no staff whose contracts were not renewed while on maternity leave.

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

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

There were 14 formal requests for paternity leave during the period 01 January 2010 to 31 December 2016. Three PDRA's took paternity leave *without formally requesting* it and are not represented in the statistics. Through discussion of these issues at SAT, and with input from the PDRA committee, it became clear that although all felt that paternity leave was supported, some staff were not fully aware of available paternity support in College.

Action: Improve communication with all staff around paternity rights. Monitor uptake of leave and benefits. (AP 3.9)

(vi) Flexible working

Provide information on the flexible working arrangements available.

Flexible working is positively encouraged: the example is set by senior staff (HoD and both associate heads) all have school age children and visibly work flexibly around core hours and encourage other staff to do so. Teaching commitments are discussed in advance and there are opportunities to adjust timetables for staff with school obligations or travel restrictions. In the timetable 10 hours are scheduled for 9 expected contact hours; this provides in-built flexibility to respond to family crises or other

"I have benefited from flexible working in the Department. After having my son, I had the hard decision of either giving up my job or sacrificing my family life - my commute to work is about 2h. I enjoy my job and like the people. I had a conversation with my supervisor; she introduced me to the flexible working scheme and gave me a lot of useful suggestions and strong support. I worked 3 days at Imperial and 2 days at home for the first two months as a transition period, gradually adjusting to 4 days at College. This transition period was so helpful, it gave me time to shift my focus and get back on track with research."

Dr Jiahui Qi, PDRA

disruptions. Members of staff regularly work from home one day a week across all levels in the Department - from PDRA to Professor.

(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.

This situation of staff returning from a career break has not arisen in the Department. Part-time working has been agreed in the past for staff returning from maternity leave, with staff subsequently returning to full-time. In these cases, the staff member, in consultation with the HoD agreed a time for return and typically a ramped up load is in place. Currently we have one member of staff working a reduced FTE following maternity leave and she has a *pro-rata* reduced teaching and administrative load. She plans to return to FT next year; her teaching/admin load will be ramped up over two years.

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.



Figure 5.5. Outreach events in which Department of Materials staff and students participate.

The outreach leadership team consist of 1F and 3M staff members: Ms Caroline Detchenique (Senior Marketing and Outreach Office); Prof. Julian Jones (Societal Engagement Champion), Prof. Jason Riley (Associate Head for Teaching) and Dr Ben Britton (Materials University Outreach Network). In 2013 we initiated several new schemes for WP including summer schools and visits to target schools. Outreach is formally recognised in PRDP and also in annual promotions exercises. The promotions form now has a dedicated section on outreach/WP (AP 4.6).

More than 50% of academic staff (with no obvious gender bias) are involved in outreach activities and students and PDRAs are encouraged to participate; we form a gender-balanced team for all events. We work with the Princes Teaching Trust providing workshops for teachers. Dr Sandrine Heutz (R) has a Royal Society grant to develop in-classroom activities around solar energy for primary school children in years 2 and 6.

“An inter-university Materials working group was formed in 2016 to explore outreach activities, with a view to raising the profile of Materials as a discipline and broadening recruitment opportunities. We are sharing best practice and coordinating activities-targeting initial efforts towards school pupils and teachers. We met at the University of Birmingham, have online meetings to coordinate actives and meeting again at Imperial in May.”

**Dr Ben Britton, Outreach Network
Coordinator**

Staff are also involved in media-related outreach programmes *e.g.* Julian Jones 'Operation Ouch' (CBBC); Bill Lee 'The Great Pottery Throwdown' (BBC).

Last year we initiated a project with the V&A: CDT students (cohort 40% F) work with museum staff developing free-to-use school-resources around temporary exhibits; they worked on for the 'Arup' Exhibition (Summer 2016) – downloaded by 500 UK schools, and a further 200 printed copies collected at the Museum. This is recognised at the annual assessment of the CDT and reported back to the research councils.

(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.

College runs several high profile 'women in STEM' events with significant representation from Materials. The Department promotes gender balance in all activities, and gender balance is built in to Departmental seminars. We have a prominent display of our Athena work and female academic staff near to the Department main entrance. Website and all publicity materials have been reviewed in the last 2 years to improve balance and tone. Female staff members have significant roles in the Department (DoR, MSc Director, PDRA Mentor, Electron Microscopy Facility Manager). The LCN@Imperial Seminar Series is coordinated by Materials and gender balanced (50% female speakers, alternating M/F chair).

We have high profile visiting female academics actively engaged with the Department.

	Role/Institution	Activities in the Department
Prof. Sue Ion OBE, FREng, FRS	Former technical Director BNFL, Chair, Euratom Science and Technology Committee-UK	Seminars to all staff and students Teaching on Nuclear streams and MSc ANE
Dr Eleanor Schofield	Head of Conservation and Collections Care, Mary Rose Trust	Research Seminars Teaching on UG courses (Nanomaterials) Hosting placement students PDRA workshop on careers
Prof. Irene Yarovsky	Professor of Biophysics and BioEngineering, RMIT University - Australia	Research Seminars Workshops Hosting student secondments
Prof. Bilge Yildiz	Professor of Nuclear Science and Engineering, MIT – USA	Research Seminars Hosting MEng placements

Table 5. 12 Visiting female academics in the Department.

We are embedding Athena principles and the visibility of role models into teaching: *e.g.* as part of the design study (a project run in groups of ca 8 students for 3rd-year UGs: they 'form a company', design and build a factory and produce a business plan). Course leaser, Dr Luc Vandeperre designed an assessment day where students present to senior materials engineers in industry. The panel of four are all women: Dr Amanda Quadling (Morgan Advanced Materials); Dr Emma Claxton (Rolls Royce); Ir. Kristien Rombouts, (STEM advocate); Ir. Anja Serneels, (Umicore). In conjunction with this Luc runs a networking lunch for all final year UG and MSc female students with the external partners.

"I was very pleased to note that out of the 20 students in the 'lead' teams (*e.g.* directors, technical directors), which the students appoint themselves, 6 were female (*i.e.* 30% as leaders compared to 23% representation), as it confirmed to me that our student body seem to find female leadership an altogether normal thing. In fact, many of her teammates have privately told me how Rebecca is an awesome director."

Dr Luc Vandeperre, Design Study Coordinator

Externally our female staff are active role models (see Table 5.13 below). Their work is actively supported by the Dept. (*via* administrative support if necessary *e.g.* for conference organisation, *etc.*); external work is reviewed and valued as part of PRDP, work-load, and the promotions.

Materials hosted an 'IdeasLab' at the World Economic Forum in Davos in 2016; the 50:50 gender balanced team (Stingelin, Ryan, Alford, Grimes) created an integrated workshop bringing together the different areas of research across the Department. Videos are on You Tube.



Figure 5.6. Prof Natalie Stingelin at Davos (2016)

	People and Activities
Journal Editorships	Georgiou, Stevens, Stingelin, Ryan and Heutz, are editors of high impact journals (RSC Advances, ACS Nano, RSC Journal of Materials Chemistry, Nature Materials Degradation, Frontiers of Materials)
Conference Organisation:	The ECME 2013 conference was organised by Natalie Stingelin and Sandrine Heutz. This was the first time since founding in 1992 that is led by females. Molly Stevens co-chaired the Materials Research Society Spring Meeting (2014)
Plenary Lectures	Xie - Bio Asia Pacific Conference (2015), Beijing; Mattevi - Frontiers of Science meeting, Whistler (2016); Ryan - Electrochemistry at Modified Interfaces, Auckland (2016); Stevens - The European Colloid and Interface Society, Rome (2016); Heutz International Conference on Functional Materials, Shanghai (2014).
Prizes	Georgiou- Macro Group UK Young Researchers Medal for contributions to polymer science (2016), Stevens - Clemson Award for Basic Research (2016); Ryan- IoM3 Rosenheim Medal and Prize, (2014).

Table 5.13. Examples of External Visibility of our Female Staff.

Action: Create an environment with visible female role models- for Dept members and external visitors. (AP 4.1)

(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.

We are committed to learn from, and to share best practice with colleagues at Imperial and beyond and actively engage the materials community.

Within College our work has been recognised and several of our initiatives have been adopted including:

- Post-doc champions in all Departments
- Performance profiles are being adopted across FoE
- Initiation of a College review of SOLE responses vs gender
- Mary Ryan has been appointed Faculty Ambassador for women to facilitate exchange of best practice

Our HoD currently chairs UK the Materials HoDs group and raised Athena issues as a standard agenda (from September 2016). Via this network, we are establishing a cross-institutional group for sharing good/best practice in Materials. A workshop will be held at Imperial in the summer.

We are working with the University of Auckland in developing proposals for a diversity programme (currently NZ does not have an Athena equivalent and UoA are lobbying for

action on this). Mary Ryan has visited them and Nicola Gaston (Prof of Physics at UoA, author of 'Why science is sexist') will visit the Department later this year.

Using his experiences in the Department Robin Grimes promotes diversity through his engineering and STEM work as chief Scientific Advisor to the Foreign & Commonwealth Office (FCO). A recent example was at the international Women's Day breakfast in Canberra (Australia-UK Chamber of Commerce and the UK High Commission).

The Department works with BP women's network on gender issues and the Athena process, and are also involved in Shell's 'SHE' day for women in engineering.

We have set up a sabbatical programme for international female academics as both research exchange and sharing of best practice (in both directions). Prof Jan Talbot (Dean of Engineering at UCSD, USA) spent 6 months in the Department in 2016, and Prof Helen Chan (Chair of Materials at Lehigh, USA) will visit this summer.

(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.

In promoting diversity and Athena principles into the Department we communicate that creating such an environment is *better for everyone*; and allows all to achieve their greatest potential. We have highlighted the need for respect and inclusivity in all activities and practices, and have revised policies for transparency and neutrality. We worked within the SAT to develop a Code of Conduct. Communication is key: listening to Department members, acting on discussions, and giving feedback are all critical. All-staff meetings provide a place for greater discussion. *E.g.*, last year changes to space for PhDs and PDRAs was disruptive, and poor communication meant that people felt disenfranchised. We learnt from this, got feedback and have changed the way in which we manage space allocation. In asking for feedback, and acting on it, we have regained trust.

Action: Continue to review Department processes and policy for transparency; improve communication. (AP 4.2)

We reviewed how we interact with the student body to embed the Athena principles from day 1. As an example of where we have observed and challenged unacceptable behaviour is the 'Pit' - a student-led magazine by the Royal School of Mines Union (Earth Science and Materials Departments): the magazine contained inappropriate sexist and racist comments and was distributed to all students. We took several actions: the two HoD's sanctioned the Union and threatened it with closure, all magazines now have to be agreed by the HoDs prior to publication (we appreciate it is a fine line to censorship and this is light touch with agreed standards); all Department funding for society events is made contingent on diversity criteria. This also raised the issue that there was no clear route for students to complain, and staff did not know whose responsibility it was - we set up a dedicated email account and promoted more widely the routes for discussion among students and awareness among staff. This also led more widely to discussions around setting of expectations of UGs on arrival and engagement between the staff and student bodies (*e.g.* RSM quiz nights now take place with the members from both departments in our building).

Action: Improve communication and raise awareness of complaint routes, responsibilities and tutor for women. (AP 1.3)
Create a sense of departmental community. (AP 4.4)

We reflected on our attitudes to the department culture in a session at the 2015 staff away-day. Run by Sandrine Heutz, attendees were asked to provide three words that described the Department. As a snap-shot it provided a real insight into how people feel and provided a platform to discuss how issues might be addressed. *E.g.* there was an undercurrent of people feeling isolated and not understanding how things worked leading to comments like 'opaque' and 'secretive': we reviewed department policies to increase transparency at all levels and to encourage staff to feel empowered to ask questions. As a follow up, there was a dedicated session at the 2016 away day on "fostering collaboration and cooperation" that began with exploring motivation/barriers to collaboration.

To improve Department culture and cohesion we initiated several actions:

- Establishment of a Department 'celebration' - high profile lecture (Bauerman Lecture) and gala dinner. The whole Department is invited to the lecture and a cross-section of the Department is invited to the dinner in recognition of their contribution to department culture. Either selected by ballot or in recognition of their role *e.g.* all student/PDRA representatives on departmental committees attend. We require gender balance in the Bauerman speaker series (2017 Sir Richard Friend, Cambridge; 2018 Prof. Jennifer Lewis, Harvard)

- We established a code of conduct: centred on mutual respect; to which all members of the Department, staff and students, are expected to adhere.
- We initiated a termly 'all-staff meeting' that aims to be fully inclusive: everyone has an equal voice.

Action: Create an environment of mutual respect, and challenging those who do not meet our standards (AP 4.3)

(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.

Staff have a range of 'life' commitments that impact on their time. All departmental meetings and seminars take place between 10.00-16.00 so that staff with these responsibilities aren't excluded. All standing committee meetings take place on a Tuesday, scheduled 6 months in advance to allow for planning. Social gatherings, where possible, are at lunchtime or early afternoon.

(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 policies.

At induction, employees are made aware of College policies on equality, dignity at work, bullying, harassment, grievance and disciplinary processes. They are advised to contact their line-manager if issues arise, *and* the DRM, to ensure a third party is aware. They are told about confidential schemes in College. Staff are asked to take part in a survey about well-being and management style and the effectiveness of these policies. There are regular emails and workshops to encourage staff to report issues by calling a dedicated number (*e.g.* 'Have Your Say').

If staff feel their concern has not been fairly addressed, they are advised to contact the DRM, who will discuss issues with the HoD and continue to meet with the employee until issues are resolved. Investigations are managed discreetly and everyone is assured total confidentiality. If changes to procedures are needed, it is resolved to ensure that it is effective for everyone.

Staff are sent updated policies by College and followed by HoD email to encourage staff to report freely and without fear of consequences. Departmental managers are required to attend specific courses: Mental Health and Wellbeing; Disability Support; Equality/Unconscious bias courses. There is a weekly HR 'drop in' session where staff can discuss any issues and get confidential advice.

(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.

In 2015 the Department introduced a workload model for academic staff that included all teaching and administrative duties. Anonymised data are released to staff so people are aware of the distribution of load across the Department and how they compare to colleagues. This approach has led to a rebalancing of teaching and better communication.

This model was discussed at a staff meeting in 2015 and there were questions about transparency and how the model is set up (*e.g.*, load estimates for administrative jobs) and metrics used did not include *all* activities; *e.g.*, outreach, external committees *etc.*

We recently updated this model and trialled a 'performance profile', developed by the HoD after communication with staff. The profile includes **all** activities; it enables better bench-marking for staff on how they are performing, and provides more clarity during promotion processes. Within this profile we aim to compare staff within levels (L/SL, R/P). Following the trial, the Faculty of Engineering is adopting a similar approach across Departments.

Action: Improve workload model (profile) and monitor and intervene for individuals with high load. Monitor and reward external commitments. (AP3.8)

Staff profiles are monitored by the HoD and Associate HoDs annually and checked for gender/seniority level bias in load assignments.

Administrative roles are rotated in the Department on a 3-5 year cycle. Staff who have held a high-load job (*e.g.* Senior Tutor) are exempted from administrative load for an agreed period (typically ~3 years).

(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.

Committee	Male	Female	Total	% Female Current	% Female Pre-review
GRADSOC	12	9	21	43	36
Athena Self-Assessment Team	5	8	13	62	73
Departmental Management Committee	7	7	14	50	36
Health and Safety committee	17	4	21	19	11
Postgraduate committee	8	2	10	20	33
Research Committee	7	5	12	42	36
Space Committee	13	6	19	32	27
Staff-Student Committee	13	11	24	46	39
Teaching Committee	7	3	10	30*	38
All Staff	111	66	177	37	37
All Students	433	195	628	31	31

Table 5.14 Current Department of Materials Committees membership broken down by gender, and %Female membership before HoD Review (data Sept 2014) *Ryan stepped down from committee after PRDP load-review.

Committees are reviewed annually: as well as a gender we aim to address a 'seniority balance' in committee membership. Following discussion of the research themes at the academic staff away day (2016) we have moved to an elected theme-representative; these have replaced membership of RC (6 reps 4M, 2F). The SAT is 62% female, although *academic staff* representation at this committee is 50:50; through rotation of members we plan to encourage wider participation from male professional and support staff.

Action: Improve representation at all levels in discussion of department policies and decision making (AP 4.5)

We aim to have gender balance, but accept that 50:50 is not necessarily achievable in the near-term without overload of female staff (short term target: minimum 30%). The most influential committees are the DMC, RC and TC which all have at least 30% female representation (RC female Chair).

All staff and students (PhD) have access to meeting papers, minutes *etc.*, can view membership and TOR for each committee (*via* sharepoint), and are invited to send comments. Committee membership is reflected in the work-load model and promotion exercise.

(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?

We value inclusion of staff in external committees, and stimulate participation by:

- (i) disseminating information about vacancies
- (ii) directly contacting under-represented groups (proactively nominating them if appropriate)
- (iii) informing staff of the merits of external committee membership
- (iv) valuing membership through workload model, PRDP

Senior staff are active in sponsoring female staff to committees (*e.g.* Alford nominated Ryan successfully to the EPSRC Strategic Advisory Network). Recent appointments include:

- Heutz was supported to apply for, and appointed to, EPSRC Strategic Advisory Team Physical Science, and is a member of The European Science Foundation's Materials Expert Committee
- Ryan is a member of the Materials Panel for FREng appointments, and National Heritage Science Forum.
- Stevens was appointed to the Nurse Research Councils Review

WORD COUNT 7170 (including quotation boxes)

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.

Dr Catriona McGilvery came to the Department to study for a PhD in 2004. She then worked for three years on multidisciplinary projects before taking two years out of science. She came back to the department in 2013 as a PDRA in Advanced Electron Microscopy, which became a Research Officer position in 2015. This role involves running high-end electron microscopes, training students, lecturing and participating in research projects.

Catriona says: *"In my years at Imperial I have found flexibility to be a key characteristic of the Department. This is put into practice in a number of different circumstances and is particularly considerate and accommodating towards staff members' personal as well as work needs. This is often in the area of flexible working hours, particularly for those with young families or who commute a long distance. I am involved in a number of voluntary activities outside of work and was keen to dedicate time to these. When I started my PDRA I had a very supportive supervisor who was happy for me to work a four-day week so that I could continue to be involved in these projects.*

As I was considering what to do at the end of my 'science-break', a job came up in the department that was particularly suited to my skills. Despite the department wanting the position filled immediately, they offered to hold the position for me for seven months to allow me to finish a two-year course. The department was also happy to allow me to work a four rather than five-day week, even though the job had been advertised as full-time. As I had been out of the science environment, I was given time to become familiar with the role, and the department paid for me to attend a conference so that I could get up to speed with advances in the area. This was invaluable in terms of familiarising myself with progress in the field and for networking within the microscopy community.

One of the big advantages of our department is its openness, making it easy to approach other members of staff for advice, form collaborations or ask questions. I particularly appreciate the collaborative nature of work both within and across departments. This results in a much friendlier working environment and a real desire to work hard to achieve scientific excellence. Although my job has quite a specific role, I am able to develop projects and collaborations for myself, supervise students and post-docs and take a lead in running and developing the facility as a whole.

Since returning to work in 2013 I have appreciated the level of support from the Department in a number of areas. When some difficult issues have arisen these have been dealt with professionally, quickly and with the full support of my manager and the Department. Although initially on a 3 year contract my job was made permanent after two years, and I appreciated that being sorted out far in advance of the three-year deadline and providing job security."

Dr Alexandra Porter joined the Department as a Lecturer in 2007, being promoted to Senior Lecturer (2011), Reader (2013) and Professor (September 2017). Her research is at the interface of biology and medicine, and she is an expert in analysis of bio-nano interfaces. She manages the electron microscopy facility.

Alex says: *"I have taken two maternity leaves of six months each over the past three years. The Department has supported me in a number of ways both financially and to help my transition back to work. For example, the Dept. supported me to work flexibly and part-time for the first two months after returning. The DRM called me during the months leading into my return to discuss options. During my first maternity leave, the Dept. paid for a teaching fellow to cover my lecturing load, to give me time to get back into my research and ensure that I didn't have to give 9 am lectures during my first (sleepless) year back! After my second maternity leave, I had a reduced lecturing and tutoring load. Additionally, I found it difficult to hire new PhD students as I missed funding rounds for studentships/scholarships. The Department recognized this and allocated a DTA studentship so that I could take on a student to support new projects. The College provides financial assistance to reduce the high costs of childcare: childcare vouchers are available as well as a salary sacrifice scheme.*

I was awarded the Elsie Widdowson Fellowship for each maternity leave, the applications supported by the Department, so that I had the time and freedom to focus on my research. This fellowship has been completely invaluable; particularly with two young children, a step-daughter, and my research group to support. The fellowship gave me time: to catch up on literature in the field, consolidate ideas, write grants and publish papers that would otherwise have accumulated on my desk. Supervising advanced research fellows properly is challenging and I had the time to work with them in the laboratory on high-risk blue-skies projects.

During my second maternity leave, I was invited to give 2 prestigious talks. The Department supported my choice to give these talks, and via the carers fund, £200 towards a flight for my mother (in Warsaw) so she could care for the baby while I presented. Without this, I would not have attended these meetings. Both talks were well-received, led to new collaborations and recognition of my research. This was good for my visibility in the field, and helped to give me confidence returning to work. Believing in your ability is extremely difficult when you return to work and it can become prohibitive when you lose self-belief. This funding and my fellowships have allowed me to get back on track, build confidence and take the positives from being away from work. Recognising these challenges, the Department provides a mentoring scheme: I assigned myself Sandrine Heutz who is incredibly supportive. During my promotions I was supported by mentors who guided me through the processes. I have also been given individual assertiveness training, arranged by the Dept., to help run my group and handle difficult collaborators. This enabled me to be more effective in the workplace."

Dr David Payne joined the Department as a Lecturer and Royal Society University Research Fellow in 2011, promoted to Senior Lecturer in 2015 and to Reader (effective September 2017). He is a surface scientist, specialising in understanding a wide range of materials for energy applications.

David says: *“My first son Alexander was born in 2012, and my second son Tomas was born in 2014, both closely following me joining the Department in late 2011. My journey through these early stages of parenthood has been mirrored step-by-step by my journey through my early academic career, with the Department being a source of support and stability, during a wonderful, but turbulent few years. My mentors have provided support, particularly around the promotion processes. My wife is also an academic (University of Leicester), and combining childcare, travel and work commitments has been challenging. I am fortunate that both our children attend the Imperial nursery; knowing that they are a short distance from my office, is reassuring and allows me to fully focus on my job. Sometimes I have to stay at home at short notice if they are unwell, but I have always experienced that rescheduling meetings is met with understanding, concern for my children’s wellbeing and compassion. Closely linked to this is another useful practicality in having ten slots scheduled for nine hours of lectures, which means that I can reschedule a lecture at short notice and not cause too much inconvenience to students and staff. The annual PRDP process allows me an opportunity to formally discuss my performance and, more importantly, my goals and needs for the next 12 months and beyond; although I tend not to bottle everything up for an annual meeting - the HoDs have always been very approachable and willing to discuss issues whenever need arises.*

What is clear to me is that procedures have been developed by the Department to create a vibrant, diverse and more equal workplace benefiting everyone, even if the policy may not be directly applicable to them. For example, the Elsie Widdowson Fellowship is not a scheme that I applied for myself (shared parental leave hadn’t been introduced), but its existence has benefited me indirectly by normalising the need for flexible working. It falls within the saying ‘what is good for one group, is good for us all.’

This also links with what I feel is the defining strength of the Department. As a group, we understand that we are a random collection of people, a number whom are parents/guardians, some who are carers, others who are not, yet bounded by our shared experiences of life and the difficulties which it sometimes presents to us. It is this understanding of our differences, and our drive to promote equality of opportunity that makes this Department the success that it is, and is a reason for the success of my career.”

WORD COUNT 1507

7. FURTHER INFORMATION

Recommended word count: 500 words

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

Gender Pay Gap

In 2015-16, as part of the Dept. annual pay review, the HoD carried out analysis to look for any disparities in male / female salary. The data clearly showed that there is *no pay discrimination in the department*: for the 12 categories (where there are **both** male and female staff), the female staff *are paid more* in 8 instances, including at senior academic level (Reader/Professor), a reflection of the standing of our female staff and the value of their contributions. A gender analysis is now included annually in the pay review process.

Department Code of Conduct

“We want our Department to be a place where everyone has the opportunity to reach their fullest potential and which promotes both our individual and collective success. This relies upon each and every member of our Department doing his or her utmost to foster a respectful and supportive culture that is free of harassment, intimidation, bias and discrimination of any kind.” These are the opening words of our Department Code of Conduct, which we established in 2016 and that every student and member of staff must sign. There is not the space within this application to detail the Code, but it focuses on Respect, Academic Honesty and Integrity, Health and Safety, and Accountability, and makes clear that anyone can always contact the HoD to report any unacceptable behaviour.

WORD COUNT 220

8. ACTION PLAN

The action plan should present prioritised actions to address the issues identified in this application.

Please present the action plan in the form of a table. For each action define an appropriate success/outcome measure, identify the person/position(s) responsible for the action, and timescales for completion.

The plan should cover current initiatives and your aspirations for the next four years. Actions, and their measures of success, should be Specific, Measurable, Achievable, Relevant and Time-bound (SMART).

See the awards handbook for an example template for an action plan.

Objective	Rationale / Originator	Description and Implementation	Reference Application Section (s)	Responsibility Action Owner [required for success]	Timeframe Start/end date	Success Measure
1. Undergraduate Students						
1.1 Increase proportion of females on to UG programmes.	Fixed UG numbers over last 10 years, lower than sector average.	Widening Participation through outreach programme with targeted schools. Target A-level transition and A-level students. Enable teachers to take materials science into the classroom lesson plans and teacher coaching. Review course streams and advertising (Summer 2017), monitor application / uptake rate across streams. Increase visibility of role models at all levels. Support events focused towards women. Materials Network for increasing profile .	4.1(ii) 4.1(v)	<u>UG admissions</u> [Outreach officer, HoD]	2017-2020	<i>Increased UG proportion of female enrolment; Target 50% in long term; 40% after 3 years. Increased awareness of Materials.</i> <i>Monitored by Admissions Tutor annually and in annual statistics reported to SAT, DMC.</i>
1.2 Monitor UG data.	Ensure programme is not creating gender biases. Changes in BEng/MEng choices require further analysis.	Monitor BEng and MEng choices vs gender and any effect on destinations of graduates. Monitoring of data (system in place and currently show no bias). Benchmark internally (FoE, Physics and Chemistry), and nationally (HEIDI).	4.1	<u>Senior Tutor</u> [DUGS]	2017-2019 Ongoing , annually every July	<i>Understanding of choices: better advice to students.</i> <i>No bias in achievement levels.</i>
1.3 Communication / satisfaction.	Lack of awareness of complaint routes. Feedback in student satisfaction surveys.	Raise awareness of routes for discussion of issues; promote tutor for women position and Athena confidential email. Appointment of Senior Tutor to Student Office (person identified: summer 2017). NSS and the Student Barometer (Jan annually). Obtain feedback on actions directly from UGs via student led surveys (March annually).	5.5(iv)	<u>DUGS</u> [Athena Champion, UG reps]	2016-2019	<i>Improved satisfaction for all students (especially women) measured via student surveys, NSS feedback and focus groups. Increase satisfaction score to 90% by 2019.</i>

1.4 Integrate UGs with Department as a whole.	UG feedback to SAT and SSC.	Organise Dept. wide activities, (e.g. Dept. BBQ) Integration of UG and PG activities. UG representation on SAT. UG reps are invited <i>ex officio</i> to annual Gala Dinner(annually every Jan).	5.3(iv)	<u>DUGS/DPGS</u>	Introduced measures 2016 and ongoing	<i>Improved UG experience and department cohesion measured by student-led survey and feedback to committees (target 80% of students report feeling integrated by 2021))</i>
2 Postgraduate Students						
2.1 Increase % of female PhD students.	Improve pipeline of women in materials.	Active engagement with UGs, target potential applicants and encourage early application to secure funding. Careers advice in research to UGs (to connect with our recently instigated seminar series) Questionnaire for those who decline PhD offer, to understand why women do not accept positions.(to be launched spring 2018).	4.1(iv)	<u>PG Admissions</u> <u>[DUGS, DPGS]</u>	2017-2020	<i>Increased percentage of women PGs (applying & accepting). Target 50% in long term; 40% after 3 years. Monitored by PG office reported annually and evaluated at PGC and SAT.</i>
2.2 Increase interaction with research and academic staff through social and academic Opportunities.	Raised by PG rep at Athena meetings and further feedback from PG committee.	Implement PGs Materials Seminar Series Plan for 3-4 Dept. events annually run by the PGs; ensure 50:50 M:F speaker ratio.	5.3(iv)	<u>PGC Chair</u> <u>[post graduate tutor]</u>	Plan of activities in place for October 2017	<i>Better department cohesion, PGs feel part of the materials community. Self-sustaining activities run by the students.</i>
2.3 Improve supervisor-PG experience, provide 'best practice' for all.	Imperial College PG Survey. PRES and Feedback from PGC 'PhDs want time / good communication with the supervisor'.	All students have a second supervisor to ensure projects are running well and any issues can be addressed <i>via</i> a third party. Develop New Induction Programme and Continuity Lectures: Discuss expectations and responsibilities with both staff and PGs.	5.3(iv)	<u>DPGS</u> <u>[all staff]</u>	Induction Pilot run Oct 2016, Review (summer 17) , and extend to other years 2017.	<i>Feedback of high quality supervision by PGs, improved experience. Monitored by DPGS/ GRADSOC and PG / PRES survey. Target 80+% positive response Link to submission rates (see 2.4).</i>

2.4 Submission.	Ensure all students submit within funding period.	Achieve 100% PhD completion rate within 3.5 year. Monitor completion rates versus gender/fee status Clear communication of expectations to supervisors.	4.1(iv)	<u>DPGS</u> [all staff]	2017-2020 (ongoing monitoring)	100% PhD completion rate within 3.5 year achieved No bias in submission time vs gender.
2.5 Monitor Student PG data and PG Feedback.	Ensure no gender bias in PGR systems.	Collection, monitoring and benchmarking of data at a national level is established including; registry data; direct PG feedback, DPS interviews. Disseminate information/get feedback on actions from PGs.	4.1	<u>DPGS / MSc Directors</u>	Continuous Submission Jan; Recruitment July annually	No bias in achievement levels. Department performs above national average.
3 Staff						
3.1 Recruitment: Increase the number of female applicants.	Maintain and grow above sector average levels of female staff Continue to promote female staff to senior levels.	The Department maintains a pre-emptive list of outstanding candidates to facilitate search committees - managed by themes. Candidates approached for positions should be 50:50 women and men. Identify outstanding young candidates and sponsor them for Fellowship applications. Provide active mentorship for academic roles. Review job descriptions / adverts for neutral language: emphasis on preferred skills and highlight Silver SWAN holder. At least one academic female on all shortlisting and appointment panels. (4.3 unconscious bias) .	5.1(i)	<u>HoD</u> [Theme Reps / DoR, DRM]	2016-2019 Monitor and review actions annually	Increased applicant pool of female staff at all levels to 40% by 2021.
3.2 Support at key transition points: mentoring.	Feedback from PDRAs committee and at SAT.	Set-up mentoring programme, with training from PDC. Provide support for academic review of proposals and mock interviews. Database and information days on fellowships every May. Redeployment of fixed-term staff: informal consultation 6 months before contract end	5.3(iii)	<u>PDRA Champion</u> [DoR, HoD, PDC, FD]	-Pilot run in 2016, review and extend by end of 2017 -Workshop every 6M	Successful transition of PDRAs to permanent positions (academia or industry). High success rate for proposals. Successful mentorship programme assessed by PDRA-led survey. Target 40% of PDRAs

		HoD meetings with long-term PDRAs to discuss career plans Industry Champion (Fionn Dunne).				<i>to experience mentor scheme by 2021</i>
3.3 Improve transparency around promotion for academic staff.	Feedback from staff survey and PRDPs.	New procedures in place (2016) to improve transparency and ensure that ALL staff are considered. Formalise role of teaching peer review in promotions procedure (raise student awareness to unconscious bias in SOLE responses). Increase support for teaching practice.	5.1(iii)	HoD [DOM]	2016-2018 Monitor and review policy annually	<i>Increased satisfaction with process determined by staff survey: Target; 100% participation, 95% satisfaction. Formalised peer review processes for College promotion. Improved teaching evaluation for staff.</i>
3.4 Induction : embedding Athena principles on day 1.	<i>Feedback from new staff.</i>	New staff to meet with a member of the Athena SAT committee at the start of their appointment, who will introduce Athena actions and departmental culture, sign the code-of-conduct.	5.1(ii)	DRM, [SAT]	Embedded by 2017	<i>More rapid integration into Department culture.</i>
3.5 Training.	Concerns in data around declining levels of uptake / low level of Male training.	Assess uptake of training courses by academic staff (especially low M uptake). Promote and monitor (both internal and external) training for staff. Post-Doc survey to include a questions on training, support <i>etc.</i> take actions that arise from feedback.	5.3(i)	DRM [Post-doc mentor]	2019-2021	<i>Improved awareness of training courses (via PRDP review) and increased uptake for all staff to 50%. Gap closure for M:F uptake rates.</i>
3.6 Improved mentoring / support of early career staff.	Feedback from staff at PRDP and at Staff Athena / DRC meetings.	Engagement and training of PIs in mentoring of staff, consideration of mentoring activities in promotion (PRDP 2017 – training by 2019). Feedback: allow new staff to change their mentor if they are unhappy – in a blame-free manner - review mentoring at PRDP. Grant applications reviewed by a mentor and DoR. Introduce requirement for large grant applications to include mentoring arrangements. Set up regular 6 monthly proposal workshops: monitor impact on submission and success rates (start March 2018)	5.3(iii) 5.3(v)	HoD [DoR; all senior staff]	2016-2019	<i>Increased support for junior staff - recognised in staff surveys (College survey 90% positive) and at PRDPs. Improved outcomes of grant applications (target 40% success rate).</i>
3.7 Appraisal.	Data analysis showed that some staff have not had	Achieve and maintain 100% participation in annual review process for <u>all</u> staff (currently 100% for academic staff). Return rates of PRDPs with research / professional staff will be an item for	5.3(ii)	HoD [DRM, all staff]	2016-2018	<i>100% participation in PRDP process for all staff ; improved staff development (e.g. uptake of training).</i>

	the benefit of appraisal.	academic staff PRDPs with HoD. Annual review of PRDP process and format for all staff .			PRDP annually May-June	
3.8 Improve workload model (profile) and monitor and intervene for individuals with high load. Monitor and reward external commitments.	Feedback on workload form academic staff led to new model piloted this year.	Statistics to be presented for the "median" at each staff grade, and used in promotions consideration for staff. Monitor the profiles for the women, ensuring they are in line with male colleagues (per grade). Information collected annually on all external work (e.g. external boards such as company boards, national steering groups etc. – summer 2017).	5.6(vii)	<u>HoD</u>	Jan 2018-2020	<i>Effective model that captures all staff activity effectively and that staff view as fair and transparent (via staff survey) No gender bias in profiles (based on grade comparators).</i>
3.9 Improve maternity / paternity experience.	Generally staff feel well-supported; some concerns were highlighted in data analysis and staff feedback.	Actively promote Carers' fund (CF) in the Department, monitor uptake and satisfaction with the scheme. Improve communication with staff around paternity rights. Monitor uptake of leave and benefits.	5.5(ii) 5.5(iii)	<u>DRM</u> [SAT]	2017-2020	<i>Increased uptake of carers' fund across all department-: uptake from non-research staff; 8 CF applications per year Improved awareness of paternity rights (via DRM/SAT focus group) 100% formalised uptake for eligible staff.</i>
4 Organisation and Culture						
4.1 Raising the profile of women in materials,	Create an environment with visible female role models- for Dept. members and external visitors.	Balanced representation of women in department literature and events - Ensure female representation of Website, Department notices/ space, seminar programmes	5.6(ii)	<u>HoD</u> [All]	Ongoing- Review annually	<i>Balanced seminar programmes (50:50), high visibility of female staff.</i>
4.2 Improved transparency in all department policy decisions / procedures.	Response to feedback from staff away day.	Review, amend, monitor all policy documents in response to feedback: <ul style="list-style-type: none"> Promotions policy reviewed 2017 Appraisals policy reviewed 2018 Flexible working policy reviewed 2019 	5.6(iv)	<u>DOM</u> [HoD]	Ongoing- Review annually	<i>Transparency in policies measured by staff feedback.</i>


4.3 Create an environment of mutual respect, and challenging those who do not meet our standards.	Raise awareness of unconscious bias (e.g response to SOLE, short-listing and interview <i>etc.</i>).	All staff (academic, research, support and professional) to have completed unconscious bias training and include as a mandatory part of our induction process for all new recruits (3 sessions per year from Jan 2018). To be rolled out to our PhD and UG student communities. Inclusion of expectations and culture in induction procedures, (Code of Conduct) and backed up by sanctions for people who undermine the culture. Mechanism for confidential complaints/concerns: 'Athena materials' email account set up (Jun 2017) will be directed from the Department website.	5.1(i) 5.6(ix)	<u>DRM, DUGS, DPS</u> <u>HoD</u> <u>DRM</u> [SAT Chair]	By 2018 embedded in all induction programmes 2017-2019 (review sanctions) 2016-ongoing	<i>All department to have undergone unconscious bias training, and training to be embedded in all programmes.</i> <i>Code of conduct embedded as Department expectation.</i> <i>Members of department communicate with Athena over any concerns.</i>
4.4 Create a sense of departmental community.	Greater cohesion as a Dept.	Events for the whole department. E.g. Christmas party, end-of- year staff-student rounders match followed by BBQ for whole Department.	5.6(iv)	<u>DOM, GRADSOC</u>	Ongoing	<i>Improved satisfaction and dept. cohesion in staff and student surveys (Target 70% response; 80% satisfaction).</i>
4.5 Representation at all levels in discussion of department policies and decision making.	Ensuring that all voices are heard and have influence in the Department.	Monitor composition of all committees for gender and seniority balance (ensuring that women are not overburdened) Encourage an environment where everyone has 'a voice'. Allow time for discussion and train chairs managing discussion.	5.6(viii)	<u>HoD</u>	Initial review 2015 Target by 2018	<i>30% representation of females on all committees</i> <i>Staff empowered to speak in meetings.</i>
4.6 Create a National Materials University Network.	Recognition that there are discipline specific issues.	Convene regular meeting (initially <i>via Materials HoD network</i>); exchange ideas and challenges. Sharing best practice <ul style="list-style-type: none"> • Outreach Network Imperial June 2017 • Athena Network Imperial August 2017 	4.1(ii) 5.6(i)	<u>SAT Chair</u> [HoD committee]	2017 and ongoing	<i>Successful network events translating to increased awareness.</i>



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