### Athena Swan renewal application form for departments

#### **Applicant information**

Name of institution	Royal Holloway, University of London
Name of department	Computer Science
Date of current application	May 31 <sup>st</sup> , 2022
Level of previous award	Bronze
Date of previous award	April 2016
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Section	Words used
An overview of the department and its approach to gender equality	2,726
An evaluation of the department's progress and issues	3,270
Future action plan*	
Appendix 1: Culture survey data*	
Appendix 2: Data tables*	
Appendix 3: Glossary*	
Overall word count	5,996

<sup>\*</sup>These sections and appendices should not contain any commentary contributing to the overall word limit

#### Overall word limit: 5500 words + 500 COVID-19 word extension

#### <u>Note</u>

Figures 2 and 3 have been taken without any modification from the web and brochures. The text contained in those figures is not included in the word count as it does not serve any purpose for meeting criteria, therefore it can be ignored by reviewers.

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## Section 1: An overview of the department and its approach to gender equality

In Section 1, applicants should evidence how they meet Criterion A:

• Structures and processes are in place to underpin and recognise gender equality work

Recommended word count: 2500 words

#### 1. Letter of endorsement from the head of the department

Please insert (with appropriate letterhead) a signed letter of endorsement from the head of the department.

#### Guidance

The letter should highlight the key priorities and challenges within the department relating to gender equality and how the principles of the Athena Swan Charter are linked to departmental strategy. The letter should outline the personal commitment and involvement of the head of the department (for example, any involvement in the self-assessment or particular actions) and evidence how the department's gender equality work is led and supported by the senior management of the department.



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Dani Glazzard Head of Athena Swan First Floor Napier House 24 High Holborn London WC1V 6AZ

Date: May 20, 2022

Dear Dani Glazzard,

I give my wholehearted support to our Athena Swan Bronze renewal application, which is based on an in-depth process of self-reflection and work taking place across all levels of the Department.

I became HoD recently, in 2021, and the work of my predecessors, Professor Jose Fiadeiro and Dr Carlos Matos, has embedded the Athena Swan principles into our wider Departmental strategy, cementing gender equality and representation issues as one of the key areas of concern in departmental affairs and student relations. I personally contributed to this process by leading our EDI agenda item at Department meetings, and by devising strategies around work-life balance and recruitment, which are part of our new action plan. I will leave my role in July 2022, and a new HoD is expected to be in place as soon as I leave, ensuring continuity of EDI action. The Department vow to continue this support unabated, as we are acutely aware of the need for action and commitment to gender equality in Computer Sciences, carrying the culture forward and continuing the improvement in all aspects of gender equity and inclusion.

Since the renewal of our Bronze award in 2016, we have seen improvements in several areas:

- The proportion of female students in the UG population has grown, from 16% to 18%. The total number of female students has more than doubled. While our figures compare favourably to the sector, there is clearly significant room for further work.
- We have appointed two new female academic staff, one at Reader level. This
  doubled the number of female academic staff in the Department. In addition,
  another recently hired female colleague was promoted to professor, becoming

the second female professor in the Department. These improvements in staffing are directly linked to improvements in the culture and processes around hiring.

We have also undertaken work to enable a more inclusive and supportive environment and culture overall. We provide continuous support, financially and in terms of staff engagement, to CompSoc, the student computing society at Royal Holloway in their EDI activities, and to *Women In the Security Domain and/Or Mathematics* (WISDOM), a society dedicated to promoting EDI within the postgrad community in the department and the school. To support a continued culture of equality, diversity and inclusion, we have also ensured that all staff engage with EDI training.

At the same time, the impact of Covid-19 across the last two years has been felt at all levels for the Department, as recruitment has become more challenging and student societies have had to scale back their activities. Coming out of the pandemic, we need to ensure that the positive activities we have seen from the time before Covid-19 are revived and carried forward.

Going forward, we have identified six key priorities to focus on. Although the proportions of women, both staff and students, has increased, there is still much room for improvement and to close our awarding gaps. Consultation with colleagues and students indicate that we need to pay attention to the working and study environment and ensure that all members of the community feel supported and a sense of belonging to the Department. In this, we need to ensure that everyone is aware of the support structures in place, including reporting processes, that these structures are effective and build a culture where everyone feels that their concerns are being heard.

I fully support our comprehensive action plan we have developed, to continue our journey to strengthening all aspects of gender equality in the department. I will ensure we continue to invest funds and time resource into EDI activity to support our staff and maximise impact.

Yours sincerely,

Professor Magnus Wahlström

**Head of Department** 

#### 2. Description of the department and its context

Please provide an introduction to the department.

#### Guidance

The description should provide an overview of the department. The description should highlight contextual factors that are particular to the department; for example, location, discipline coverage, structure, split-site locations or organisational information (such as the department's relationship with the faculty, university or community partners). Outline key contextual changes and developments which have taken place since your last award. Data analysis is covered in subsequent sections and should not be duplicated in this section.

Established in 1968, the Department of CS is one of the oldest in the UK. We are a research-intensive department, placed within the top 25% of CS departments nationally for research quality in the REF2021. All eligible staff were submitted to REF2021, including our two female academics at that time. Our research is organised in four centres, one of which, the Centre for Intelligent Systems, was established in 2021 and is co-lead by Professor Sara Bernardini.

Centre for Algorithms and Complexity	Centre for Intelligent Systems	System for Reliable machine learning	Centre for Programming Languages and Systems
Prof. Magnus Wahlstrom	Prof. Sara Bernardini Prof. Kostas Stathis	Prof. Volodya Vovk	Prof. Matthew Hague
	Prof. Chris Watkins		

Table 1. Research Centres and their leaders

Since 2016, CS has seen significant growth, with 7 new permanent academic members of staff, including two women.

Our UG degree programmes include BSc and MSci in CS, with three specialist pathways (Artificial Intelligence, Software Engineering and Information Security), and two joint-honours degrees with Mathematics and Media Arts. Our PGT offer has six MSc programmes, reflecting the Departmental expertise. All programmes have the option of a one-year industrial internship. Since 2016 we have introduced four new programmes: the BSc in CS with Integrated Foundation Year, and MSc in Distributed and Networked Systems, Internet of Things, and Artificial Intelligence. Overall, the number of our students has significantly increased (+800 students circa), with a noticeable increase in the number of female students (+184%).

During Covid-19 we have successfully delivered the entire portfolio of our programmes in online and blended learning modes. We have also offered two start dates for our MSc programmes (January and September) to support our large population of overseas PGT students, who were adversely affected by travel restrictions.

We are recognized for the excellence of our teaching and student support. Our degrees have been repeatedly accredited by relevant bodies: the British Computer Society re-accredited our programmes in 2020 and our staff/students software development arm, namely Code Groovers, was awarded a "Best Practice"; our joint programmes with Royal Holloway's world-leading Information Security Group (ISG) are fully certified by the National Cyber Security Centre (NCSC), a unique recognition in the UK; our staff have won a number of University teaching prizes and awards.

#### **Organisational Changes**

A major change since the previous AS submission is that in 2019 the university restructured the faculty system into "Schools". Computer Science is now part of the School of Engineering, Physical, and Mathematical Sciences (EPMS), which additionally encompasses four departments (see Figure 1).

The School is managed by an Executive Committee that meets each month, comprising the Executive Dean, the Heads of Department, and nine School Directors, with specific areas of responsibility in the management of research and teaching across the School. PTO staff are line managed centrally by the School, hence they are not included in this application.

The shift to a School organisational structure allows for a better aligned EDI strategy and sharing of experience and best practices. EPMS has an EDI Director (Professor Lizzie Coles-Kemp) and in this capacity reports to the Executive Dean. The EDI Director acts as a bridge between the College EDI structure and departmental EDI structures. CS has an EDI Committee, which oversees departmental EDI initiatives. EDI issues are a standing item on the termly Departmental board meetings. Outputs from these for a feed into the School EDI committee, Research Committee and School Executive.

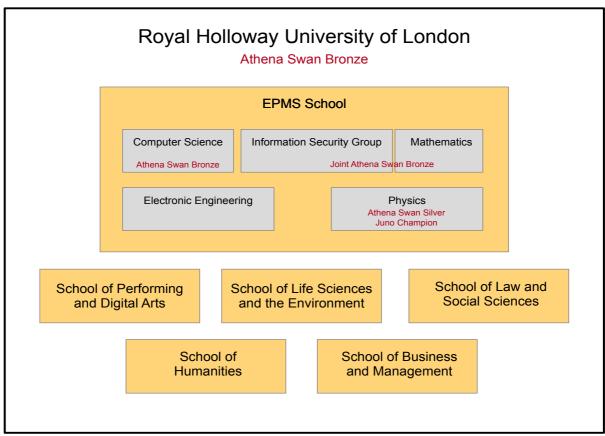


Figure 1. CS Department's structure and its context within the College

The reporting structures and EDI working relations between Department, School and College have noticeably strengthened the last year. A new College-wide EDI Governance Structure (see diagram below) was implemented in December 2022 to accelerate focus on intersectionality, diverse and inclusive decision-making spaces, action, and transformational change. Our School EDI Director sits on the main College EDI Committee (chaired by the College Vice-Principal for Staff and Student Experience). She also chairs one of the four College Strategy Working groups (Inclusive Infrastructure) and reports back to the School on College initiatives and action via the School EDI Committee attended by our EDIC Chair. Our EDIC Chair is also directly involved in the Inclusive Education part of the College EDI structure where discussion takes place around issues including student access, progress and success.



#### Academia vs Industry panel





We invite you to come along and hear from 4 top researchers from Maths, Computer Science, and Information Security as they discuss and answer questions about the challenges and opportunities of working in both industry and academia! We will be hearing from the following panelists:



Anamaria is an associate professor at NTNU and a part-time employee at Intel Previously, she was a postdoc at the ISG group at RHUL. Before that, she worked as a Research Scientist at Intel Al Research in San Diego. She completed her PhD at Bristol University, under the supervision of Nigel Smart. She is interested in privacy-preserving machine learning, fully homomorphic encryption and more broadly, computing on encrypted data, lattice-based and post-quantum cryptography.



#### Dr Chiara Piacentini

Chiara is a Computational Scientist at Augmenta AI, a startup that provides Chilara is a Computational scientist at Augmenta Ari, a startup that provides generative tools to solve design and engineering problems. She obtained her PhD in Computer Science from King's College London. During that time, she worked on various projects based on the application of Al planning and scheduling to realworld problems, particularly in the area of smart grid and search and track missions. Before joining Augmenta Al, she worked as a postdoctoral research fellow in the Mechanical and Industrial Engineering department at the University of Toronto, where she focused on the integration of discrete optimisation and symbolic Al.



#### Prof Sara Bernardini

Sara is a Professor of Artificial Intelligence in the Department of Computer Science at Royal Holloway University of London, where she is also the Director of the MSc in AI. She received her PhD in AI from the University of Trento (Italy) as well as an MSc and BSc in Computer Science and Engineering (summa cum laude) from the University of Rome "La Sapienza" (Italy). Before joining Royal Holloway, she was a research associate in the Planning Group of the Department of Informatics at King's College London and, previously, a research fellow at UCL Knowledge Lab. In 2005-2007, she was a research scientist at NASA Ames Research Center, where she worked on autonomous planning agents for space mission operations.



Stefanie joined Royal Holloway in 2007. She studied at the FU Berlin and went to the University of Oxford as a visiting student to write her Diploma thesis. She stayed on to do her PhD and then held post-docs at the TU Munich and the ETH Zurich. During this time she also spent some months on research visits in Australia and the US. Her research interests are in discrete mathematics and algorithms. Her life outside work is currently dominated by her family but she very much hopes to get back to reading books and active travel soon.

Figure 2. Event organised by WISDOM in 2021

#### **Student Societies**

The Department's student-led CompSoc. founded in 2012, continues to play a major role in promoting an inclusive culture and gender equality in the Department as the student population grows. With events ranging from beginner workshops to Hackathons, attracting a good number of female students, it contributes to dismantling barriers to progression for women in Computer Science. A significant number of female students are members of the society's managing committee, including two female society presidents in 2016-17 and 2018-19. The group receives staff and financial support by the Department.

The WISDOM group was founded in May 2016 by two women PhD students from the Mathematics and ISG Department, and has since 2019 expanded across all disciplines within the EPMS School. WISDOM offers a strong support network to PGR/PGT students and staff, interested in equality and exploring ways that more women can enter and prosper within academia. WISDOM activities include monthly lunch meetings, workshops, discussion groups and outreach activities including socials (see Figure 2). The group's achievements were recognised in 2017 with the

Principal's award for enhancing fairness. CS is actively involved in WISDOM, with one PGR student in its organising board and two academics supporting its activities.

#### **Summary of Key Developments**

Since our last application, the proportion of female staff and students has increased, we have widened our offering of taught programmes, and we are now part of a School, providing a strong cross-departmental female science academic base. Our student societies are well-established and well-supported by the Department.

#### 3. Athena Swan self-assessment process

Please provide an overview of who was involved in the preparation of this application, how it was prepared, and what plans are in place to support the department's future gender equality work.

#### Guidance

An overview should be provided on the self-assessment team (SAT) undertaking the self- assessment work. This should be provided in a table showing the gender of SAT members, their professional/student role in the department, and their role in the SAT. The SAT should be representative of the department in relation to gender profile and staff type, grades and roles.

A summary should be provided of how the SAT has undertaken the self-assessment process, including details of what sources of data have been used to inform the application, and how the SAT has consulted with staff and students. Details should be provided (where appropriate) of consultation response rates disaggregated by gender. Applicants should reflect on how the SAT responded to and acted on the panel feedback provided on the previous application.

An overview should be provided on how the department plans to deliver and maintain gender equality activity over the coming 5-year period, including how often the SAT will meet, how SAT succession and turnover will be planned and managed, and (where appropriate) how the action plan will be implemented, evaluated and updated.

The CS EDI Committee (EDIC), which is also our AS SAT, comprises twelve members reflecting the composition of the department both professionally (varying roles and seniority) and personally (gender, nationality, caring responsibilities, experience of flexible working). Three members were members of the 2016 EDIC, and two have been participants since its creation in 2010, ensuring continuity. The EDIC includes the HoD and reports to the Departmental Board. Further members were identified through their role.

Members of the EDIC continued to meet termly, following our successful 2016 bronze submission, to ensure activity around EDI were progressing. EDIC members focused on different themes, with a core AS Working Group (AS-WG) consisting of three EDIC members (1F/2M) including the EDIC Chair. This subgroup met on a weekly basis to oversee the coordination, writing and submission of the renewal application and liaise with EDIC members around activities including data collection, staff/student consultation and action planning.

Name (gender, contract)	Category	Role in Department	Role on SAT
Matteo Sammartino (M, FT flexible)	Academic	Departmental Placement Schemes Coordinator  EDI Champion  EPMS Representative for Data work stream group, as part of the central College Inclusive Education Board	EDIC Chair  Member of AS-WG
Sara Bernardini (F, FT)	Academic	Professor  Director of MSc in Artificial Intelligence  Co-Director of Centre for Intelligent Systems	Deputy EDIC Chair EDIC Chair 2015 - 2021 Student Focus groups
Magnus Wahlstrom (M, FT)	Academic	Professor  Head of Department  Director of Centre for Algorithms and Complexity	Workload and staff recruitment, supports EDIC Chair
Elizabeth Scott (F, FT)	Academic	Professor  EPMS School Assessment Director	EDIC chair 2010 - 2013  Provides information about management and policies

		1	
Chris Watkins (M, FT)	Academic	Professor  Department PGR Lead  Library Liaison Director of Pastoral Care	EDIC chair 2013 - 2015 Provides information about PGR programme
Giorgios Koutsoukos (M, FT)	Academic	Teaching-Only Senior Lecturer  CEO of Code Groovers, the software development arm of the department	Member of AS-WG
Hugh Shanahan (M, FT)	Academic	Professor  EPMS School and Department Director of Student Experience	Provides information about student experience
Raisa Dzhamtyrova (F, FT)	Academic	Lecturer	Member of AS-WG
Santiago Franco Aixela (M, FT)	Research Assistant		Reports about RA experience
Alexandra Neacsu (F, FT)	PGR Student	PhD Student  Member of WISDOM  Organising Board	Reports about WISDOM
Joshua Yewman (M)	UG Student	Head of Computing Society  Student representative for EPMS	Reports about Computing Society

Katerina Finnis (F, FT flexible)	Professional Support Staff	EDI Manager (central role)	Provides information about EDI policies, supplies EDI data, runs staff focus
			groups.

#### **The Self-assessment Process**

The EDIC has met on a termly basis since its creation in 2010 to:

- Monitor progress in the implementation of the action plans.
- Discuss staff/student consultation activity and quantitative data reports to identify emerging key issues to address
- Provide updates on progress and EDI action to the Department Board
- Discuss wider EDI action and good practice at School and College level.

To better evaluate progress of action points, we have analysed a range of quantitative data, using sector data as benchmark when available (HESA, UCAS). Data was obtained centrally and by liaising directly with Departmental roles.

Sources for quantitative data used are detailed below.

Data	Source
Students – numbers, applications, classifications/completions, training (PGR)	Strategic Planning, Doctoral School for PGR training data
Staff – numbers, contract type/function, grade, role, recruitment, promotions, training	HR
Outreach events – uptake, supporting staff/students	Director of Outreach, College Marketing Services
Destination data	College Career Services for Students, Departmental data for RAs
Uptake of student placement schemes	Placement Schemes Coordinator

To understand how we are making progress in attracting more women to CS, we looked at data on applications/offers/acceptances, and participation in outreach events. Destination data for students and RAs allowed us to better understand student and staff aspirations, and the quality of the advice we provide. Training and Departmental internships data gave us a good indication on how well we are doing in supporting women's employability.

#### **Student and Staff Consultations**

Our assessment has been informed by institutional student and staff surveys, and minutes of relevant committees, such as the Student-Staff Committees. Informal continuous feedback from CompSoc and WISDOM helped us understand the key issues our female students are experiencing.

In 2021 we ran an AS student survey, in which students at all levels were surveyed about their experience and perception of women representation in the department, and generally in CS. The overall response rate was 10% (19% F, 8% M), broken down as follows:

AS Student Survey 2021	F	M
UG	21%	8%
PGT	9%	5%
PGR	60%	33%

Relevant excerpts can be found in Appendix 1.

In 2021 we also ran the staff AS Culture Survey (results in Appendix 1). We had a 42% overall response rate (37% F, 39% M). The following table gives response rates by gender and roles (where known):

AS Staff Culture Survey 2021	F	М
Research-only	None	100%
Teaching-and-Research	50%	71%
Teaching-only	27%	15%

Both surveys were run for 5 weeks to maximise participation, with weekly reminders sent out, and were followed up by focus groups to better understand identified issues: 8 women participated, with roles within teaching, research and students. Surveys will be repeated annually.

To formulate the current action, in 2022 we created an online document, shared with all staff, where colleagues contributed ideas on key gender issues for the Department, and proposals for actions.

#### **Response to Panel Feedback**

In drafting the present application, we carefully considered all feedback points provided by the panel for the previous application, considering the different level and nature of this renewal application. We have provided more information around EDI structures within the institution. We committed to reflecting deeply on the implications of our data analysis, including degree-awarding gaps and workloads, and the lived experiences of our staff and students. We now have UG student representation on our SAT and provided further information on how SAT members were selected.

Following rigorous assessment of progress on our previous action plan, and a thorough and multifaceted self-reflection process, we have taken more proactive action as suggested in our feedback, and produced a more measurable, targeted, and ambitious action plan solidly rooted in qualitative and quantitative data.

#### Plans for the Future

The current EDIC will expand its remit to cover all EDI aspects. This is in line with what other Schools and Departments are doing as part of our new EDI Governance Strategy.

The EDIC is working well, and we do not foresee significant changes in the short/medium-term. Student members will be replaced upon graduation, making sure that the new members can act as liaisons with CompSoc and WISDOM. The current HoD will end his mandate in July 2022; the new HoD will take part in the EDIC.

Besides holding its termly meetings, the EDIC will liaise with School and College-level EDI committees and groups. The EDIC Chair is a member of a dedicated College-level Student Data work stream, which is investigating more effective approaches regarding data collection and analyses for the purposes of assessing student awarding gaps. Future actions will focus on implementing the approaches devised by this group.

Whilst the present application already comments on the short-term impact of Covid-19, the medium/long-term impact will become clear in the next years. We will measure the adverse effects of Covid-19, adding new actions accordingly.

Another focus will be on embedding structures and practices that enable intersectionality considerations and understanding of lived experiences. Whilst an intersectional consideration of data will yield small numbers, we are committed to providing spaces to enable colleagues/students talk about their perspectives and identities, with these discussions further shaping departmental policies/procedures. As part of this, we will ensure CS engages in College-initiated, School-level upcoming Conversations About Race Sessions, aimed to create safe spaces for our community to engage in meaningful, honest and at times challenging discussions about experiences, regardless of their background.

In conclusion, we have a highly ambitious action plan which we are committed to delivering, with a view to applying for a Silver Award in 2027.

#### Section 2: An evaluation of the department's progress and issues

In Section 2, applicants should evidence how they meet Criteria B and D:

- Progress against the applicant's previously identified priorities has been demonstrated
- Evidence-based recognition has been demonstrated of the key issues facing the applicant

Recommended word count: 3000 words

#### 1. Evaluating progress against the previous action plan

Please provide a critical evaluation of your most recent action plan and any other actions you have initiated since your award.

#### Guidance

Please provide the most recent iteration of the action plan associated with the department's previous award. The action plan should be 'RAG' rated (rated 'red', 'amber' or 'green') dependent on progress.

Please provide an overview of the progress achieved in implementing the department's previous action plan. The description should focus on the methodology of action implementation, evaluation and iteration. Applicants should reflect on actions from the previous action plan which have been rated as amber or red, and any actions which were removed over the course of the award. Detail should be provided about how the department evaluated the success (or otherwise) of actions, and what factors (internal or external to the department) acted as barriers or facilitators to the department's implementation of actions and meeting of success measures. Where challenges to successful implementation were noted, applicants should outline what steps were made to respond to these, and how the action plan was adjusted. Applicants should describe the main learnings and outcomes from the evaluation of the action plan, and consideration should be given to how the department can apply the learning to ensure an improved implementation of the future action plan, and secure better outcomes or impacts.

Our previous action plan had 21 actions and respective success criteria. RAG progress evaluation indicates 13 green, 5 amber and 3 red. Key **achievements** are:

**[ACH.1]** A notable increase in number of women UG applications (+83%), acceptances (+148%), and in our UG female student population which has triplicated (+270%). The proportion of women is now 18% (+2% since 2016).

[ACH. 2] Increasing number of female academic staff (currently 4 FTEs compared to 2 in 2016)

#### [ACH. 3] Enabling a more inclusive and supportive environment and culture

Our progress assessment approach was based on the following three stages:

**Stage 1:** The AS-WG carried out a detailed analysis of data, aiming to reveal trends, benchmark against the sector, and assess impact achieved since 2016, including the identification of disruptive effects of Covid-19.

**Stage 2:** The AS-WG assigned a tentative rating for each action, with further input sought from action plan leaders and other colleagues with relevant expertise.

**Stage 3:** The EDIC formulated a new 5-year action plan, refining actions with outcomes not deemed satisfactory, and adding ones targeting newly identified issues. Staff and student consultations played a key role in identifying future targets.

A summary of progress achieved with respect to the previous action plan is provided below.

	Action	Progress	Success criteria
1	Monitor and report UG student data by gender, including applications, offers, and acceptances; compare with UCAS data.	GREEN	Gender balance in applications, offers, and acceptances remains above the Sector; improvement over current gender balance.
2	Collect data on the uptake of Open/AV-days by gender; modify feedback forms to understand if there is any gender bias in marketing material, presentations or activities; monitor gender balance among student and staff helpers; use feedback in the annual revision and planning of Open/AV-day organisation.		Good levels of feedback; gender balance among student and staff helpers.
3	a) Monitor and report UG entry qualifications by gender and domicile; b) monitor UG degree awards by gender and domicile and analyse them in relation to admissions data; c) monitor levels of achievement in each module by gender and domicile, and feed back into the annual module revision cycle.	RED	Whilst it takes time to correct this bias, we would like to start seeing some improvement at the end of the cycle.
4	a) Monitor and report PGT student data by gender, including applications, offers, and acceptances; b) keep outreach material gender neutral; c) monitor degree awards.	AMBER	Maintain gender balance in applications, offers, and acceptances above the Sector; improve current gender balance.
5	a) Monitor and report PGR student data by gender, including applications, offers, and acceptances; b) maintain positive action in relation to scholarship applications; c) invite UG and PGT students to attend the annual PhD colloquium.		Maintain gender balance in applications, offers, and acceptances above the Sector; improve current gender balance.

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6.	Collect destination data for UG, PGT and PGR	Stronger emphasis on the
	students by gender; input information to the	departmental website; better
	relevant Web pages, and to personal advisors to	advice provided to students
	inform students.	on their future career.
7	a) Organise a focus group for our first-year female	Increase in applications and
	students aimed at collecting further feedback on	acceptances. Increased
	our outreach activities, their reasons for accepting,	levels of satisfaction and
	and their expectations; and another focus group for	better performance in degree
	the remaining women to collect specific feedback	classifications.
	on our teaching, which will feed into module	
	reviews. b) Continue to support the women's	
	chapter of the Computing Society and consult them	
	regularly on our implementation of the Athena Swan Charter principles.	
0	Continue to positively encourage female applicants	As new posts are advertised,
8	in job advertisements and follow-up enquiries.	an increase in the number of
	Create a Web page for applicants where	female applicants.
	information is provided on our maternity and	lemale applicants.
	flexible-working policies, and child-care provision;	
	include the link in job advertisements.	
9	a) Continue to monitor RA applications and	As new posts are advertised,
	appointments, and gender awareness when writing	an increase in the number of
	funding applications for RA posts; b) include in job	female applicants.
	advertisements the link to the new Web page	
	mentioned in Action 8.	
10	Include at least two female academics in interview	More offers to women are
	panels.	made.
11	Organise individual meetings between candidates	More women are appointed.
	and a female academic of the Department whenever possible.	
	i wiletievel bussible.	the state of the s
12		Gender balance in
12	Use the new Undergraduate Research	Gender balance in applications for the
12	Use the new Undergraduate Research Opportunities scheme to further encourage female	applications for the
12	Use the new Undergraduate Research	applications for the Undergraduate Research
	Use the new Undergraduate Research Opportunities scheme to further encourage female students to consider continuing to a research	applications for the Undergraduate Research Opportunities scheme.
12	Use the new Undergraduate Research Opportunities scheme to further encourage female students to consider continuing to a research career in CS.	applications for the Undergraduate Research
	Use the new Undergraduate Research Opportunities scheme to further encourage female students to consider continuing to a research career in CS.  a) Monitor RAs' follow-on positions identifying any	applications for the Undergraduate Research Opportunities scheme. RAs report, in both surveys
	Use the new Undergraduate Research Opportunities scheme to further encourage female students to consider continuing to a research career in CS.  a) Monitor RAs' follow-on positions identifying any gender issues; b) RA line managers to discuss individual circumstances and offer advice during the annual appraisal;	applications for the Undergraduate Research Opportunities scheme.  RAs report, in both surveys and exit interviews, an awareness of criteria for future possible academic
	Use the new Undergraduate Research Opportunities scheme to further encourage female students to consider continuing to a research career in CS.  a) Monitor RAs' follow-on positions identifying any gender issues; b) RA line managers to discuss individual circumstances and offer advice during the annual appraisal; c) actively encourage all RAs at induction and the	applications for the Undergraduate Research Opportunities scheme.  RAs report, in both surveys and exit interviews, an awareness of criteria for future possible academic appointment. All RAs have
	Use the new Undergraduate Research Opportunities scheme to further encourage female students to consider continuing to a research career in CS.  a) Monitor RAs' follow-on positions identifying any gender issues; b) RA line managers to discuss individual circumstances and offer advice during the annual appraisal; c) actively encourage all RAs at induction and the annual appraisal to take College training courses;	applications for the Undergraduate Research Opportunities scheme.  RAs report, in both surveys and exit interviews, an awareness of criteria for future possible academic appointment. All RAs have been appraised every year.
	Use the new Undergraduate Research Opportunities scheme to further encourage female students to consider continuing to a research career in CS.  a) Monitor RAs' follow-on positions identifying any gender issues; b) RA line managers to discuss individual circumstances and offer advice during the annual appraisal; c) actively encourage all RAs at induction and the annual appraisal to take College training courses; renew the request for College to systematically	applications for the Undergraduate Research Opportunities scheme.  RAs report, in both surveys and exit interviews, an awareness of criteria for future possible academic appointment. All RAs have been appraised every year. Institutional statistics show
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18	Create a database open to the public containing the details of all female computer-science academics in the UK.  This is an innovative proposal with the potential to have far reaching impact in the general community.	Database is created and populated, and is kept up to date.
19	Ensure all staff undergo equal opportunities training.	All staff are trained in equality awareness
20	Put research profiles of PGRs and RAs on departmental website	Appropriate material on the website
21	SAT members to review the process leading to the present application and make recommendations on the most effective way of streamlining surveys and data collection/analysis so that it can be acted upon; HoD to report to College and agree on how to implement recommendations that require engagement with central services.	Effective processes have been implemented according to the recommendations.

#### **Green Actions**

We are proud of achieving nearly two thirds of our actions, which directly contributed to our key achievements. Many of them have become "business as usual" activities; others have been developed into more ambitious actions for our future action plan.

ACH. 1: related to green actions 1, 2, 6, 16.

#### Key highlights:

- We have achieved a substantial increase in female UG applications (+83%), far better than the sector (+26%). The increase in acceptances is even higher (+148% against +12%) (see [REDACTED]). This is reflected in the number of female UG students, which have more than triplicated (+270%). The proportion of women UG students is now 18% (+2% since 2016). Gender balance of applications, acceptances and offers remained consistently above (2016-2020) or aligned with the sector (in 2020/21) (Figure 8).
- We established an inclusive and diverse approach regarding organisation, content, and delivery of outreach activities. For instance, our standard open day welcome talk includes a video about the use of AI/CS in theatre productions indicating the applicability of the topic in the creative industries, traditionally more attractive to women. Positive feedback was consistently collected from participants, with no gender issues emerging. Gender balance for staff helpers reflects the composition of our Department, and for student helpers the gender gap was lower, with an average 30% women. The percentage of female participants in Open/AV days was around 25% on average.
- Our brochures now include additional content that promotes gender balance e.g., one of our female students outlining her overall experience in studying in CS (Figure 3). Moreover, we have put much more emphasis on students' future

### Computer Science

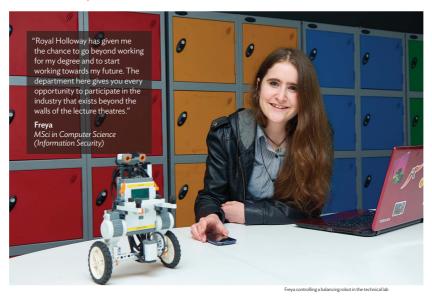


Figure 3. Picture from the 2022 brochure.

career: we have created a dedicated section on our webpages presenting the results of independent studies that backup our strong tradition in graduate employability rates; personal advisors and members of staff with strong connections to industry consistently advise students (of all genders) on employability/future careers. UG/PG destination data over the last 3 years indicate noticeable positive employability rates for female students, which are better compared to male students.

ACH. 2: related to green actions 8, 9, 10, 15.

#### Key highlights:

• We have managed to attract a good number of women applicants for academic and RA posts: [REDACTED] and [REDACTED] show that we had significantly more female applicants than the previous period (2013-2016). Covid-19 has impacted the Department's capacity to recruit more academics: in 2020, of the 6 posts advertised 4 were suspended. Those posts were re-advertised in 2021, resulting in the recruitment of two new female academics: 1 Lecturer and 1 Reader. We have been consistently including two female academics in interview panels, especially following the increase in the number of our female members of staff, and we will continue this practice over the next period, taking into consideration workload implications.

 The Department adopted and published (June 2016) maternity/paternity/adoption policies indicating its commitment and active support for staff in such circumstances.<sup>1</sup> For instance, regarding workload

<sup>&</sup>lt;sup>1</sup> https://www.royalholloway.ac.uk/research-and-teaching/departments-and-schools/computer-science/about-us/maternity-policy/

reduction, flexible working hours, non-discrimination. The policies complement and reinforce the respective College policies. Finally, our Web site and job advertisements have been updated to include links to EDI-related resources.

ACH. 3: related to green actions 12, 14, 15, 17, 19 and 20.

#### Key highlights:

- 16% applications to the Department's Undergraduate Research Opportunities scheme (UROP) are from women, a number that is consistent to the overall composition of UG students.
- PhD students training data indicate good levels of participation, particularly of women. Moreover, feedback from the institutional Postgraduate Research Experience Surveys (PRES) has been positive and consistently better compared to other departments and/or sector.
- CS has continued supporting the student-led Computing Society, including the Girls-Who-Code group. For instance, staff members actively supported the organization of four Hackathons, one of which (Royal Hackaway 2018) won the Student Union's Best Event annual award.
- The College offers a wide variety of EDI-related training (e.g., online courses, specialized workshops). The department actively encourages staff participation in such courses, e.g., via relevant announcements. Moreover, the successful completion of an EDI course is now part of the probation requirements for new members of academic staff and for members of hiring/promotion panels.
- The profiles of PGRs and, where applicable, RAs are made available in the College's Pure system, the central system for staff research profiles. The departmental website includes links to the respective Pure profiles of academic staff, research staff and research students.

#### **Red Actions**

The following actions were not successfully implemented during the previous period. Still, with respect to the first two actions we are confident that significant progress will be made with success criteria met within the next 5 years.

No 3. a) Monitor and report UG entry qualifications by gender and domicile; b) monitor UG degree awards by gender and domicile and analyse them in relation to admissions data; c) monitor levels of achievement in each module by gender and domicile, and feed back into the annual module revision cycle. Success Criteria: Whilst it takes time to correct this bias (high attainment gap female overseas PGT vs male), we would like to start seeing some improvement at the end of the cycle.

Due to the academic restructuring and the reorganisation of EDI information systems, the data listed in Action No.3 is not yet available. As mentioned, a

systematic approach to assessing awarding gaps between different student groups is being developed at College level. We will seek to implement it in the context of key Priority 3 (see next section).

 No 11. Organise individual meetings between candidates and a female academic of the Department whenever possible. Success Criteria: More women are appointed.

While we did recruit more female staff, we have not been able to systematically organize individual meetings between candidates and female academics. The main impediment was the low number of our female colleagues (2 FTEs until 2021) and the need to protect their workload. Considering the increase in the number of our female academics, we are confident that the action will soon become a "business as usual" activity.

 No 18. Create a database open to the public containing the details of all female computer-science academics in the UK. Success Criteria: Database is created and populated, and is kept up to date.

The initiative did not go forward mainly because it became clear that there are many online systems that serve a similar purpose. The action will not be carried over the next period.

#### **Amber Actions**

The following actions are rated "amber" and carried forward into the action plan for the next period.

 No 4. a) Monitor and report PGT student data by gender, including applications, offers, and acceptances; b) keep outreach material gender neutral; c) monitor degree awards. Success criteria: maintain gender balance in applications, offers, and acceptances above the Sector; improve current gender balance.

The actions identified, namely (a), (b) and (c) have been implemented. Still, with respect to success criteria, data on applications, offers, acceptances and gender balance indicate both positive and negative outcomes. The proportion of female PGT applications, offers and acceptances substantially decreased since 2016, with -9% applications, -12% offers, -14% acceptances in 2020/21 (see Figure 9). On the positive side, the impact on gender balance was fairly limited until 2019, with female PGT students remaining above the sector (Figure 4). The gender gap then increased (+12%) in 2020. Several measures have been put in place to mitigate such effects: PGT recruitment events feature a female academic and a female student representative discussing successful careers of graduates, PGT promotion materials put more emphasis on female PGT students. In 2021 two female academics joined the PGT teaching staff. As a result, in 2021/22 the gender gap was reduced.

 No 5. a) Monitor and report PGR student data by gender, including applications, offers, and acceptances; b) maintain positive action in relation to scholarship applications; c) invite UG and PGT students to attend the annual PhD colloquium. **Success Criteria:** Maintain gender balance in applications, offers, and acceptances above the Sector; improve current gender balance.

The proportion of female PGRs was 29% in 2022 Vs 33% in 2016. Due to a number of constraints e.g. very few available College fee waivers and scholarships, Covid-19 and Brexit, it has been proven difficult to attract high-quality PGR candidates of any gender, therefore, specifically allocating scholarships for women is unlikely to work in practice. However, 40% of scholarships have been given to women since 2016. We also encourage and support our female students to apply to other funding schemes. For example, in 2020 one female student was awarded a Roy Edwards Scholarship.

• No 7. a) Organise a focus group for our first-year female students aimed at collecting further feedback on our outreach activities, their reasons for accepting, and their expectations; and another focus group for the remaining women to collect specific feedback on our teaching, which will feed into module reviews. b) Continue to support the women's chapter of the Computing Society and consult them regularly on our implementation of the Athena Swan Charter principles. Success Criteria: Increase in applications and acceptances. Increased levels of satisfaction and better performance in degree classifications.

The implementation of action (a) started with a delay, was scheduled in 2019, it was further delayed due to Covid-19. We managed to organise focus groups in 2022, which have informed this application. In what concerns action (b), we did explicitly support the women's chapter of the Computing Society, which no longer exists following a decision of the Student's Union that was not in our control. Nonetheless, the Computing Society is actively involved in the EDIC via their President.

• No 13. a) Monitor RAs' follow-on positions identifying any gender issues; b) RA line managers to discuss individual circumstances and offer advice during the annual appraisal; c) actively encourage all RAs at induction and the annual appraisal to take College training courses; renew the request for College to systematically collect data on the uptake of training courses. Success Criteria: RAs report, in both surveys and exit interviews, an awareness of criteria for future possible academic appointment. All RAs have been appraised every year. Institutional statistics show high level of RA participation on training courses.

Actions (a) and (b) were implemented. Still, the number of female RAs has been statistically insignificant with just one female RA since 2016 and a limited number of RAs in general. Action (c) was partially implemented, but in a rather ad-hoc fashion.

 No 21. SAT members to review the process leading to the present application and make recommendations on the most effective way of streamlining surveys and data collection/analysis so that it can be acted upon; HoD to report to College and agree on how to implement recommendations that require engagement with central services. **Success Criteria:** Effective processes have been implemented according to the recommendations.

The action was partially implemented due to the College-wide restructuring into "Schools". For instance, systems have been restructured and relevant policies and processes updated. Moreover, we now have a College-level function that has the responsibility of collecting and disseminating data. The action will be carried over to the next period, in a revised form, aiming to align departmental data collection processes with the ones implemented by the School, and College-wide processes, initiatives and systems.

#### Main Lessons-learned

In what follows we provide an overview of the main lessons-learned from the evaluation of the action plan which have also informed our new action plan.

- The College's commitment to EDI and the increasing momentum in the community to make change have been an important facilitator to our own initiatives. While in the past we may not have been as engaged as we could have with College-level initiates, we intend to maintain our renewed links with EDI work across all levels of the College to maximise the impact of our actions.
- 2. The low number of female academics in previous years was a challenge in carrying out certain actions. The recent increase will enable us to implement such actions with more consistency, efficiency and effectiveness whilst ensuring our colleagues' workloads reflect this labour.
- 3. The paramount importance of keeping the SAT consistently active and supported. Being in a stage of unprecedented growth, the department aims to continue this practice, and put in place additional feedback loops that engage staff/students in a more systematic way.
- 4. Covid-19 has caused unprecedented disruption at all levels, including to our student societies (CompSoc, WISDOM). In recognition of their key facilitator role in offering a fulfilling experience to our female students and enhancing their sense of belonging, the Department aims to offer additional support to these societies.
- 5. In hindsight, we acknowledge that the 2016 action plan was not as SMART as it could be, prompting us to devise actions that can be measured in a more systematic way. This is explicitly reflected in our action plan.
- 6. The realization that a successful and mature EDI programme is a strategic, constantly evolving, life-long journey and not merely an actions checklist, thus requiring commitment to continuous improvement practices.

#### 2. Key priorities for future action

Please describe the department's key issues relating to gender equality, and explain the key priorities for action.

#### Guidance

Applicants should reflect on their evaluation of progress and all data sources used to inform the application in order to identify the department's key issues relating to gender equality.

Applicants should consider whether and how the department's gender equality issues have changed since their previous award. This should draw on the mandatory datasets (and any additional datasets where relevant) with reference to data presented in Appendices 1-2. The department's evaluation should reflect on insights particularly as these relate to gender equality (e.g., the representation and progression of people of particular gender identities).

Applicants should consider any aspects of good practice that could be translated to other areas, and any areas where improvement could be gained through future action. Applicants should consider how issues have been influenced by external events; for example, the Covid-19 pandemic.

Based on the identification of the department's key issues, no more than 4-8 key priorities should be identified that the department seeks to address with future action. These key priorities must be appropriate to the department's context and be justifiable based on quantitative and qualitative evidence. Applicants should consider how their priorities address intersectional inequalities.

Applicants should refer to their previously identified key priorities. If applicable, applicants can carry previously identified key priorities into the upcoming award period; where previously identified priorities are adjusted or edited for incorporation in the coming award period, the rationale for these changes should be presented.

Priorities should be specific and detailed, allowing the department to target attention to areas of greatest need. Other, lower-priority goals can still be addressed through the action plan. Priority areas may be addressed through multiple actions (these actions should be SMART). Applicants should cross-reference to the key priorities in the future action plan.

Although gender equality issues since 2016 have not substantially changed, we are increasingly aware of EDI and the need for intervention and commitment to achieve **real** change, especially considering the effects of Covid-19 and Brexit. This is reflected in our wider range of key priorities (six), which build on and complement the ones identified in 2016, and in a more comprehensive and SMART(er) action plan tackling those priorities.

### Priority 1: Improve gender balance of student population, so that at least 22% UG students, 40% PGT students and 35% PGR students are women by 2027

#### **UG Students**

UG F slowly increased since 2016, but remain low (18%, Figure 5). Applications data reveals that since 2017/18 female applicants have levelled to 16% whilst the sector is steadily increasing (Figure 8). In 2020/21 the ratio F offers/acceptances was significantly lower than 2019/20 (-7%, [REDACTED]). Covid-19 may have been a barrier here as a change in A-Level examinations may have resulted in women receiving and then declining more offers than usual.

#### PGT Students

PGT F oscillated between 33% - 39% since 2016 and are now 35% (Figure 4). The January start option in 2020/21 has had a positive effect on female applications (+130% since 2019/20), but the ratio F offers/acceptances is the lowest since 2016 ([REDACTED]) and F numbers have only marginally increased in 2021/22 (total student numbers have gone down). Since India is our main PGT market, Covid-19 and travel restrictions may have discouraged applicants. An inefficient processing of applications due to the new January-start option may also have played a role, as suggested by our PGT Lead.

#### PGR Students

PGR F numbers have fluctuated since 2016 and are now 29% (Figure 6). In 2020/21 we saw a steep drop in the number of PGR applications for both genders (-76%,[REDACTED], due to fewer available scholarships and fewer EU applicants.

#### <u>Actions</u>

For all levels, it is crucial to attract more women at application stage, capitalising on contextual changes such as the unprecedent growth of 18 years-olds over the next years in the London area<sup>2</sup>, our main outreach area; furthermore, College plans to make the PGT offer more competitive by making January start programmes part of the standard offer from 2024.

Our actions will focus on outreach: we will strengthen the message that we provide a supportive and inclusive environment where women thrive (Action 1.1 - 1.3) and carry out exciting research (Action 1.5). Technology will play a key role in widening our outreach (Action 1.2). Our student societies are a key attractor, and it is crucial to revive their activities as Covid-19 restrictions are removed (Action 1.4). Moreover, we have planned a wide range of actions to support our female students at all levels (see Priority 4), which will make our programmes more attractive.

A constant monitoring of cohort sizes and admissions data is important, to detect any effects related to Covid-19 and to inefficiencies in processing admissions (e.g., for

<sup>&</sup>lt;sup>2</sup> https://www.accesshe.ac.uk/yYdlx0u7/Preparing-for-hyper-diversity-Londons-student-population-in-2030.pdf

PGT). We plan to embed intersectionality into data collection and analysis, as our student population is increasingly more diverse—55% UG students were BAME in 2020/21 (Action 1.6).

## Priority 2: Increase the proportion of female academics to 16% and recruit at least 1 female RA by 2027

We have doubled the number of female academics since 2016, but the proportion of women remains low (14% academics, 0 RA, [REDACTED]). Recruitment numbers show that, on average, only 18% applications to academic posts were from women since 2016. Applications to PDRA posts have been increasing, but only one (male) candidate out of [REDACTED] was shortlisted in the last two years. External factors such as COVID-19 and Brexit have made attracting high-quality candidates harder, particularly from specific research areas.

Our actions will attract more women via improved job adverts (Action 2.2), a more inclusive and EDI-aware recruitment process (Actions 2.1, 2.3, 2.7) and targeted outreach (Action 2.8). It is equally important to ensure that staff receive appropriate training, especially those sitting in hiring panels (Action 2.5) and are fully aware of EDI policies (Action 2.4). Finally, we aim to bolster pipelines and support career development (Action 2.6, 2.10), and enhance the employability of our RAs via training (Action 2.9).

#### Priority 3: Close the UG and PGT gender awarding gap by 2027

Closing awarding gaps has been identified as a key priority in the College Inclusive Education strategy, with a focus on under-represented groups.

Our classification data reveals that the gender awarding gap for 1<sup>st</sup> class degrees has significantly widened in the last two years, reaching 17%, reversing the trend that saw female students outperforming their male peers in previous years (see Figure 7). This is likely to be related to Covid-19, and our efforts are aimed at going back to prepandemic awarding levels via a mixture of proactive and monitoring actions.

To tackle UG awarding gaps, in 2021 the Department launched a Peer Guide Scheme. The scheme has attracted very few students, and it is important to regularly advertise it and assess its impact (Action 3.1). It is equally important to revive well-appreciated weekly mentoring events run by CompSoc, such as beginner coding workshops (Action 3.2), and promote new initiatives such as the "Conversations About Race" sessions (Action 3.5).

A key issue for classification data is statistical significance due to low numbers. We plan to measure performance gaps by assessment type across all modules, looking at gender and ethnicity (Action 3.3). This will allow us to more reliably understand if certain groups face challenges with specific assessment types as traditional assessment is reintroduced after COVID-19. We will also liaise with the Data working group to develop further analyses and actions (Action 3.4).

The discussed actions will also target the PGT awarding gap (currently 5%).

#### **Priority 4: Increase support and engagement of female students**

Our AS student survey 2021 and subsequent focus groups have revealed issues around support and engagement. Female students are less satisfied than men with the support they receive when they start their programme, and there is a clear gender division when it comes to self-confidence and engagement (red highlight in [REDACTED]). Perceived lack of role models within the Department is also an issue for female respondents, with many students expressing worry about their future (green highlight in [REDACTED]).

We devised a wide range of actions to support our female students, ensuring that we do not adopt a deficit-approach:

- Facilitate interactions with role models (Actions 4.5, 4.7, 4.8).
- Create more physical/virtual spaces to get together and share experiences (Actions 4.9 4.11).
- Offer all students opportunities to develop their self-confidence (Action 4.6).
- Encourage women to take up opportunities to gain work experience (Actions 4.3, 4.4).
- Strengthen and intensify the way we collect feedback from female students (Actions 4.1, 4.2).

### Priority 5: Raise awareness of ways of reporting bullying/harassment and increase satisfaction of how these are tackled

Our surveys show low awareness of ways to report bullying/harassment (orange highlight in [REDACTED] and [REDACTED). Satisfaction with how these are addressed is low; in particular, there is low awareness of what is done at Departmental level (red highlight in [REDACTED] and [REDACTED]).

Ensuring that staff and students feel safe, with a focus on the prevention of bullying/harassment, is also a College-level EDI priority. College has recently launched RH Be Heard, an online system for reporting incidents (anonymously if preferred). We will increase awareness of this process (Action 5.1), and in general around bullying/harassment among students (Actions 5.2, 5.3, 5.6) and staff (Action 5.4).

The department of Psychology has produced a Personal Tutor Meeting flowchart which clarifies how staff should respond to a range of issues, including harassment. We will make sure that this is refreshed and disseminated to all staff (Action 5.5).

Finally, it is also important to streamline communication between College and the Department regarding bullying/harassment cases (Action 5.7).

### Priority 6: Improve staff satisfaction with workload, and with how well-being and mental health are supported by the Department

Our AS staff survey 2021 and focus groups revealed that staff feel overloaded, with a negative impact on mental health and well-being. This was more the case among women and has been exacerbated by COVID-19 (red highlight in [REDACTED] and [REDACTED]).

Our current workload model ensures everyone has the same teaching load and that existing admin duties, including EDI work, are taken into consideration when roles are rotated. However, it is important to keep this under review, especially as there are now more female academics in the Department.

Our actions aim to significantly strengthen the support provided by the Department to staff: we plan to increase workload transparency (Action 6.1), to carry out a thorough review of the workload model (Action 6.2) and provide staff with ways to contribute inputs and raise concerns about workload, mental health, and well-being (Actions 6.3, 6.4, 6.7, 6.8). It is also essential that EDI work is properly recognised for career advancement (Action 6.6).

#### Section 3: Future action plan

In Section 3, applicants should evidence how they meet Criterion C:

An action plan is in place to address identified key issues

#### 1. Action plan

Please provide an action plan covering the five-year award period.

#### Guidance

Based on the department's evidence base and self-assessment, an action plan should be presented which addresses the department's key issues and priorities. The plan should cover ongoing and planned actions for the next five years, and clearly cross-reference the key priorities as identified in the previous section.

For each action define an appropriate success/outcome measure, identify the person/ position(s) responsible for the action, and timescales for beginning and completion (and milestones where relevant).

Applicants should provide specific detail to indicate what intervention is planned to address identified issues. While ongoing self-assessment and data collection actions are likely to be necessary throughout the award period, the action plan should balance these actions with proactive intervention which will effect change.

It is useful to include the baseline for actions (for example, in a "rationale" column) which will support the creation of measurable targets and the ongoing evaluation of progress. Measurable, quantifiable targets are strongly preferred, where possible.

Actions, and their measures of success, should be specific, measurable, achievable, relevant and time-bound (SMART).

# Key Priority 1: Improve gender balance of student population, so that at least 22% UG students, 40% PGT students and 35% PGR students are women by 2027

Rationale	Action	Timescale	Person Responsible	Success Measures
2021/22 Data: 18% F UG 34% F PGT 29% F PGR	1.1 Advertise Athena Swan and Departmental activities/events supporting women and gender equality during Open Days, Applicant Visit Days, Taster Days, and when visiting schools	From 2023 on, every outreach event	Director of Outreach	1.1.(i) Every outreach event mentions Athena Swan and relevant events/activities  1.1.(ii). Positive feedback from female attendees
	1.2. Increase digital outreach: run outreach events in hybrid mode (in-person + online) and advertise on social media	From 2023 on, every outreach event	Director of Outreach	<ul><li>1.2.(i). Each outreach event is hybrid, with good online participation</li><li>1.2.(ii). Each outreach event is advertised on social media, posts attract at least 1000 views</li></ul>
	<ul> <li>1.3. Showcase female academics and success stories in recruitment events and promotion material:</li> <li>1.3.1 One female academic (when possible) and female student representatives participate in events</li> </ul>	From 2023 on  Every recruitment event	Director of Outreach / UG Lead / PGT Lead (all sub-actions)	1.3.(i) Participation of women in Open Days is above 25% (current average) 1.3.(ii) Positive feedback from female participants

1.3.2. Focus on women when discussing career achievements of former graduates  1.3.3. Invite female students to	Every recruitment event		
contribute stories and photos to promotion materials	Every term		
1.4. Support WISDOM and CompSoc in reviving activities/events supporting women and gender equality after COVID-19	January 2023 – June 2023	Head of Department / CompSci Chair / WISDOM Chair	1.4.(i) Budget and staff time allocation for WISDOM and CompSoc is reviewed to increase support  1.4.(ii) At least one activity/event per term, WISDOM and CompSoc report good attendance
1.5. Update CS web page:  1.5.1 Increase visibility and look of Women in Computing page: move link to the top of main CS page, use pictures instead of textual links	June 2022	CS Web Champion (all sub-actions)	1.5.(i). CS Web Page is updated 1.5.(ii). Views of Women in Computing page increase 1.5.(iii). New section and link are visited regularly
1.5.2. Create section about interdisciplinary applications/research in CS	Autumn term 2022 (updated regularly)		illik are visited regularly
1.5.3 Add link to WISDOM website	June 2022		

1.6. Conduct intersectional analysis of student numbers and admissions data:	Every admission cycle from 2022		
1.6.1. Lobby College to make intersectional numbers and admissions data (ethnicity + gender) available in EDI dashboards	2022 - 2023	Recruitment Lead / UG Lead / PGT Lead / PGR Lead	1.6.1. Intersectional data is obtained, otherwise gender and ethnicity separately
1.6.2. Identify reliable benchmarking data for PGT and PGR admissions	September 2022 – March 2023	Recruitment Lead / PGT Lead / PGR Lead	1.6.2. Benchmarking data is readily available to our EDI Data Manager
1.6.3. Analyse data, correlate with changes to admission processes due to COVID-19 and with inefficiencies	Every summer term	Recruitment Lead / UG Lead / PGT Lead / PGR Lead	1.6.3.(i). Data is analysed, issues are identified, and recommendations are made to relevant roles/committees
(continuation of <b>Actions 4 - 5</b> from 2016)			1.6.3.(ii). Proportion of F Applications and Acceptances increase by 2025: +2% for UG, +3% for PGT and PGR

# Key Priority 2: Increase the proportion of female academics to 16% and recruit at least 1 female RA by 2027

Rationale	Action	Timescale	Person Responsible	Success Measures
2021/22 staff numbers:  14% F academic staff (sector 24%); 0 F RA  Recruitment data:	2.1. Female interviewees for academic posts have one-to-one sessions with female staff during the interview process (continuation of <b>Action 11</b> from 2016)	Every round of interviews	Head of Department / Recruitment Committee	2.1. At least one session with female staff per female interviewee
18% female applicants for academic posts on average (18% in 2020/21)  87 applicants to RA posts in last two years (14 F), only 1 M recruited  AS staff survey 2021:	2.2 Modify template for academic and RA job ads so that: a) it lists concrete ways in which Department supports women; b) mentions female academics in the Department	September 2022	Head of Department	2.2. Every job ad uses modified template
71% F / 31% M reported unawareness of caring leave policies  57% F / 38% M reported unawareness of whether Departmental EDI culture and practices have	2.3. Include EDI-related question in online job application form	September 2022	Head of Department	2.3. 100% shortlisted candidates show awareness of EDI
improved in last 3 years	2.4. Send periodic reminder to staff about caring leave policies and EDI-related policies	Every term	Head of Department	2.4. 70% staff reports awareness of policies as measured in AS staff survey 2027 (both men and women)

2.5. Staff involved in recruitment undertake unconscious bias training	From 2023 on	Head of Department / Probation Advisors	2.5. 100% staff involved in recruitment is trained
2.6. Supervisors of PhD Students forward them ads of RA posts using updated template (see 2.2.)	When Departmental RA job ads are published	PGR Lead / PhD Supervisors	2.6. All PhD students are aware of RA vacancies
2.7. Encourage junior/new staff to make initial comments on candidates in departmental meetings; they can be invited to make written comments as well	Every round of interviews	Head of Department / Recruitment Committee	2.7. All staff members provide input to ensure diversity of opinions
2.8. Targeted outreach to attract high-quality female applicants for academic and RA posts:  2.8.1. Identify potential candidates by exploring web resources (Linkedin, other institutions' websites) and inviting suggestions from relevant research centres	5 months before job ads are published	Recruitment Committee / Director of Research	2.8. 10% increase in female applicants over next 3 recruitment rounds
2.8.2. Invite applications from identified candidates	When ads are published	Head of Department / Recruitment Committee	

2.9. Monitor and encourage RA training:			
2.9.1. All RAs are encouraged to take College training courses during initial induction and annual appraisals	Every year	Director of Research / Head of Department	<ul><li>2.9.1.(i) RAs report awareness of training courses</li><li>2.9.1.(ii) Each RA attends at least 1 training course</li></ul>
2.9.2. Lobby College to systematically collect data on the uptake of training courses.  (continuation of <b>Action 13</b>	2023 - 2024	EDIC Chair / Director of Research	2.9.2. Data on RA uptake of training courses is readily available to our EDI Manager
from 2016)			
2.10. Encourage and support engagement in targeted development programmes, including <i>Aurora</i> and the College award-winning <i>Supporting Women through the Promotions Process</i> Programme, with the Hod having an open door to welcome discussions around research and career development, and promotions.	From September 2022	Head of Department / Probation Advisors	2.10. Increase in the number of female professors

## **Key Priority 3: Close UG and PGT awarding gap by 2027**

Rationale	Action	Timescale	Person Responsible	Success Measures
UG awarding gap for first- class degrees significantly widened in last two years: 2019/20:	3.1. Widely advertise Peer Guide Scheme, launched in 2021 to allow UG students to reach out to fellow students for support and advice	Every term	UG Lead / Personal Tutors	3.1.(i). Number of views of Peer Guide Scheme Moodle page increases 3.1.(ii). Increase in female students' uptake
54% females 62% males 2020/21: 37% females 54% males	3.2. Support CompSoc in reviving activities that support students' learning, such as beginner coding workshops, after COVID-19 pandemic	From January 2023, every term	Head of Department / CompSoc Chair	3.2. One activity per term, CompSoc report good attendance by female students
PGT distinction gap: 2020/21: 63% females 68% males	3.3. Monitor performance gap by assessment type across all modules (UG + PGT):			3.3. UG awarding gap is a most 4%, and PGT awarding gap is at most 2% by 2025; both are removed by 2027
Numbers are very low and statistical significance is an issue; better analyses supporting intersectionality	3.3.1. Lobby College to make relevant data available in EDI dashboards	2022 - 2023	UG Lead / PGT Lead	3.3.1. Data supporting intersectional analyses (ethnicity + gender) is available in EDI dashboards, otherwise gender and ethnicity separately
are being devised at College level	3.3.2 Carry out intersectional analysis, correlate with entry qualifications and COVID-19-related changes to assessments (continuation of <b>Action 3</b> from 2016)	September 2023  – December 2023, then every year	UG Lead / PGT Lead	3.3.2. Data is analysed, issues are identified, and recommendations are made and implemented

3.4. Liaise with Data working group and develop intersectional analyses to measure performance gaps:  3.4.1. EDIC Chair reports to EDIC and relevant analyses are identified  3.4.2. Analyses are implemented	Every term  September every year	EDIC Chair  UG Lead / PGT Lead	3.4.1. Report is produced and shared with relevant roles  3.4.2. Data is analysed, issues are identified, and appropriate SMART actions are formulated
3.5. Encourage participation of staff and students in "Conversation About Race" sessions	From September 2022, biannually	EDIC Chair	3.5.(i). Regular reminders are sent via CS staff and students mailing lists  3.5.(ii). At least 1 staff member and 1 student attend each session  3.5.(iii). Feedback is collected to shape Departmental policies

## Key Priority 4: Increase support and engagement of female students

Rationale	Action	Timescale	Person Responsible	Success Measures
AS student survey 2021: 10% response rate	4.1. Advertise AS student surveys via personal tutors, final project supervisors (if timing applies), and during lectures	Every year when AS student survey opens	Personal Tutors / Project Supervisors / UG Lead / PGT Lead / PGR Lead	4.1. AS student survey response rate is at least 30%
52% F / 61% M are satisfied with support they receive at the beginning of their programme	4.2. Run student focus groups, making sure participants represent diversity of student community:		EDIC Deputy Chair	4.2.(i). Feedback about support and engagement collected, and recommendations are made to relevant roles
50% F / 27% M don't feel confident asking questions and contributing during lectures	4.2.1 For 1 <sup>st</sup> year female students  4.2.2 For remaining female students (continuation of <b>Action 7</b> from 2016)	April 2023, then every April January 2023, then every January		4.2.(ii). 70% satisfaction with support (both genders) according to AS student survey 2027
46% F / 40% M are worried for their future career	4.3. Encourage more women to apply to the Undergraduate Research Programme scheme:		UROP Coordinator (all sub-actions)	4.3 Increase proportion of female applicants from 16% (2021) to 20% by 2025
	4.3.1. Encourage staff to propose interdisciplinary projects	March 2023, then every March		4.3.1. At least 1 interdisciplinary project per year
	4.3.2. Encourage female academics to propose projects	March 2023, then every March		4.3.2. Each female academic proposes at least 1 project

4.3.3. Add EDI statement to email templates and scheme websites (continuation of <b>Action 12</b> from 2016)	April 2023		4.3.3. Emails and websites contain EDI statement
4.4. Work with College to encourage more women to apply to the new College-level "Summer Research and Teaching" placement scheme:		"Summer Research and Teaching" Scheme CS Coordinator (all sub-actions)	4.4. Increase participation of female students (only 1 in 2021)
4.4.1. Implement same actions as 4.3	Summer 2023		4.4.1. See Action 4.3
4.4.2. Consult other Departments about strategy to attract women to scheme	January 2023 – June 2023		4.4.2. New actions are proposed
4.5. Facilitate interaction between female students and female academics in the Department:			
4.5.1. Create webpage with pictures of our female academics, their email addresses, and welcoming text	September 2022	Departmental Web Champion	4.5.1. Page is created
4.5.2. Send periodic reminder that they can contact female academics if they wish, with link to page of 4.5.1	Beginning of every term	Head of Department	4.5.2. Reminders are sent, page is viewed

4.6. Explore extending the "Confidence, Assertiveness, and Personal Impact" workshop, available to staff, to students; feedback is collected to measure success and inform future improvements	June 2023 – September 2023	Director of Student Experience	<ul> <li>4.6.(i). Workshop is extended to students</li> <li>4.6.(ii). Positive feedback from female students</li> <li>4.6.(iii). Impact and enhancements discussed in focus group (see 3.3)</li> <li>4.6.(iv). 70% are confident engaging in class (both genders) according to AS student survey 2027</li> </ul>
4.7. Work with EDI Manager and students from across the College on project entitled 'How to be Consciously Inclusive in the Classroom'? (Recording of lived experiences as a learning tool for teachers, and a guide)	June 2022 – September 2022	EDIC Chair / Head of Department	4.7.(i). Links to videos circulated annually 4.7.(ii). 100% staff watch videos and access the guide
<ul> <li>4.8. Increase diversity of Departmental seminars:</li> <li>4.8.1. Each Research Centre provides list of potential speakers</li> <li>4.8.2. Virtual seminars are kept as an option as in-person events resume</li> </ul>	January 2023, then every term From January 2023	Heads of Research Centres / Seminar Organiser Seminar Organiser	4.8. 25% of invitations are sent to female speakers

4.9. Support WISDOM in organising networking events where female students meet STEM role models	April 2023, then biannually	EDIC Deputy Chair / Head of Department / WISDOM Chair	4.9.(i). Workshops are run successfully, WISDOM report good attendance by female students 4.9.(ii). 60% (both genders) not worried about future career according to AS student survey 2027
4.10. Revive and support Girls-Who-Code group  (continuation of <b>Action 17</b> from 2016)	From September 2022 on	CompSoc Chair	4.10. Group is revived in January 2023, CompSoc report good attendance by female UG students
4.11. Suggest membership of external organisations, such as PyLadies, to CompSoc	April 2023	CompSoc Chair	4.11. CompSoc report that organising committee have discussed membership
4.12. Facilitate creation of self-directed online discussion group (e.g., on CompSoc Discord server) for female students, which allows UG students to benefit from greater experience of PGT and PGR students	January 2023	EPMS School Admins / CompSoc Chair	4.12.(i). Group is created and joined by female students from all levels 4.12.(ii). Participants report willingness to pursue further study

## Key Priority 5: Raise awareness of ways of reporting bullying/harassment and increase satisfaction of how these are tackled

Rationale	Action	Timescale	Person Responsible	Success Measures
2021 AS staff survey:  57% F / 62% M know how to report  29% F / 65%M are satisfied with how	5.1. Advertise RH Be Heard scheme via posters	January 2023	EPMS School Manager / Head of Department	5.1.(i) Posters are put up in Departmental and teaching spaces 5.1.(ii). 75% students know how to report (both genders) according to AS student survey 2025, 90% by 2027
bullying/harassment are addressed in Department  57% F / 42% M don't know if they are actively	5.2. Reiterate message about bullying and harassment during Welcome Week	Every autumn term	Director of Student Experience	5.2. Slide about bullying/harassment is shown during compulsory session for students
tackled by management  2021 AS student survey:	5.3. Ensure student reps are informed of policies and reporting systems	Every year	UG Lead / PGT Lead	5.3 All reps report full awareness
50% F / 59% M know how to report 65% F / 71% M are	5.4. HoD sends periodical reminders to all staff about policies and reporting systems	Every 6 months	Head of Department	5.4. 80% staff (both genders) report awareness in AS staff survey 2027
confident issues will be tackled by College/Dept	5.5. Produce updated version of the Personal Tutor Meeting flowchart and disseminate it to all staff	From 2023 on  Reminders sent at every start of academic year	Head of Department	5.5. All Personal Tutors report awareness of procedures

5.6. Add section on bullying/harassment to 1st year professional issues tutorial(s) on ethics	Every spring term	Director of Student Experience	5.6. Personal Tutors report good students' engagement with tutorial
5.7. Investigate ways to streamline communication between College and Department on bullying/harassment cases:		EPMS School Manager / Director of Student Experience (all sub-actions)	5.7. 75% students are confident issues will be tackled by College (both genders) according to AS student survey 2025, 90% by 2027
5.7.1. Work with EPMS School Admins to evaluate effectiveness of current feedback channels	January 2023 – April 2023		5.7.1. Feedback channels are evaluated, inefficiencies are identified and reported back to College
5.7.2. Explore additional channels that may result in higher student satisfaction, for instance involving Personal Tutors	May 2023 – September 2023		5.7.2. Proposal about additional channels is made to College

# Key Priority 6: Improve staff satisfaction with workload, and with how well-being and mental health are supported by the Department

Rationale	Action	Timescale	Person Responsible	Success Measures
2021 AS staff survey:  39% F / 37% M response rate  43% F / 55% M think workload is manageable	6.1. Publish the CS workload allocations. The publication should be detailed in terms of including people who have supporting roles for particular tasks. This will ensure that the work of new and junior staff is monitored.	April 2023 – August 2023	Head of Department / EPMS School Manager	6.1.(i) Individual workload allocation is made available to all staff online 6.1.(ii) New/Junior staff access own allocation document (information on views is available on Sharepoint)
14% F / 65% M is satisfied with mental health and wellbeing support provided by the Department  0% F / 50%M are happy with actions taken to	6.2. Review existing tasks to find inefficiencies and duplications	Jan 2023 – Dec 2023	Head of Department	<ul><li>6.2.(i). Tasks in identified roles are collated to ensure coverage and avoid duplication</li><li>6.2.(ii). Review is completed and recommendations are made to College</li></ul>
mitigate gendered COVID-19 impact (38% M vs 57%F don't know if any actions have been taken)	6.3. Add workload model as standing item for Departmental meetings. This provides an opportunity for input and comments from all staff.	Every term	Head of Department	6.3.(i) Time is allocated for discussing workload in Departmental meetings 6.3.(ii) Feedback from staff is acted upon 6.3.(iii). AS staff survey 2027 indicates 70% satisfaction with workload, with no significant gender difference

6.4. Monitor workload via regular staff surveys, with particular emphasis on workload changes related to COVID-19, higher student numbers and widened PGT offer.	September 2023, then every September	Head of Department / EPMS School Manager	6.4.(i). 80% staff participate in workload survey 6.4.(ii). Identify issues, for instance excessive teaching load; make recommendations to relevant roles 6.4.(iii). AS staff survey 2027 indicates 80% are happy with actions to mitigate COVID-19 impact, with no significant gender difference
6.5. Advertise Employee Wellbeing Programme	January 2023, then every 6 months	Head of Department	6.5.(i) Contact information for programme is circulated to all staff 6.5.(ii) Staff are more confident asking for support
6.6. Ensure that EDI work is recognised for career advancement:			
6.6.1. EDI work is discussed in probation meetings and annual appraisals	Every probation meeting/annual appraisal	Head of Department / Probation Advisors	6.6.1. All staff discussed EDI work in probation meetings/annual appraisals
6.6.2 EDI work is included when making promotion applications	Every promotion round	Departmental Promotions Committee	6.6.2. Promotions Committee acknowledges EDI work in feedback to promotion applications
6.6.3. Lobby College to add EDI as an example of	2023 - 2024	Departmental Promotions Committee / Head of Department	6.6.3. Staff is notified via email when promotion criteria are updated

leadership in promo criteria	otion		
6.7. Run yearly staff for group to discuss work mental health, and we being	load, every March	EDI Manager (external role to avoid bias)	6.7.(i). Issues are identified and possible solutions/actions are discussed during focus group 6.7.(ii). AS staff survey 2027 indicates 70% satisfaction with support provided by Department, with no significant gender difference
6.8. Increase participal AS staff surveys by improving messaging: survey is advertised by EDIC, Head of Department and during Department Meetings (if timing allowers)	AS staff survey opens y ment ntal	Head of Department / EDIC Chair	6.8. Response rate is at least 60% for all genders

### Other lower-priority goals

7. Streamline data collection and analysis (continuation of Action 21 from 2016)

Rationale	Action	Timescale	Person Responsible	Success Measures
EDI governance and information systems have been restructured in last 3 years. Data collection/analysis need to be aligned to School and College-level processes/policies.	7.1. Create internal wiki for CS EDIC, summarising data sources, analysis approaches and School/College-level reporting policies	April 2023 – August 2023	EDIC Chair	7.1.(i). Wiki is created and kept updated 7.1.(ii). Wiki is regularly viewed by all EDIC members
	7.2. Collaborate with School and College to develop system for making a wide range of data available to each Department	2023 - 2024	EDIC Chair / School EDI Director	7.2. Data is available as Excel spreadsheets online
	7.3. Develop School-level harmonised approaches to data analysis, drawing from experience of Physics department (AS Silver, Juno Champion)	From September 2022	EDIC Chair / School EDI Director	7.3. Termly report is produced about best practices and approaches to data analyses

## 8. Raise awareness of inclusive practices for trans people

Rationale	Action	Timescale	Person Responsible	Success Measures
It is important for staff to be aware of the challenges faced by trans people, and to understand how to become trans-inclusive and trans-ally	8.1. Encourage colleagues to attend <i>Transgender Awareness Training</i> provided by College. Promote the <i>How to be a Trans Ally</i> online guide.	From September 2022 on, reminders sent biannually	EDIC Chair	8.1.(i). 80% staff attends training by 2027 8.1.(ii). How to be a Trans Ally guide is viewed by staff on a regular basis

#### Appendix 1: Culture survey data

Please present the results of the core culture survey questions, and if desired, the results of any additional survey questions or consultation.

Survey data has been redacted because of low numbers

#### **Appendix 2: Data tables and Figures**

#### Data tables have been redacted

#### Students at foundation, UG, PGT and PGR level

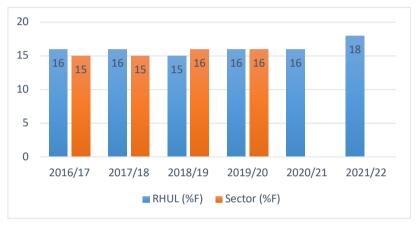


Figure 5. Percentage of female UG students vs Sector.

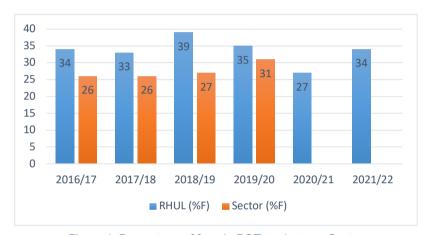


Figure 4. Percentage of female PGT students vs Sector.

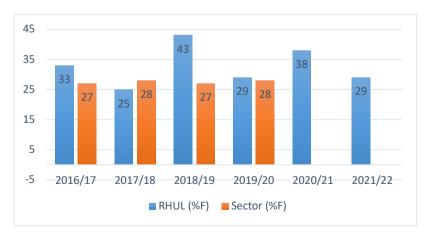


Figure 6. Percentage of female PGR students vs Sector.

#### Degree attainment and/or completion rates for students at foundation, UG, PGT and PGR level

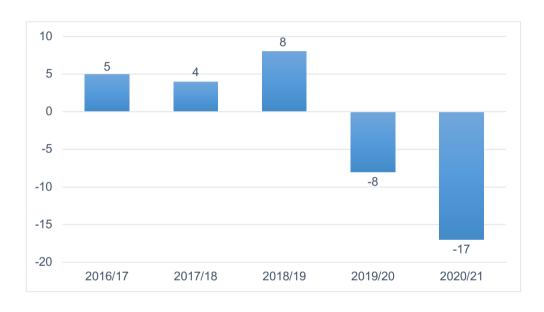
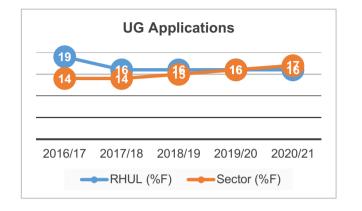
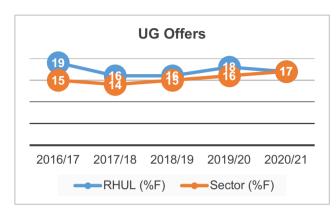


Figure 7. Difference in the percentage of F and M UG students awarded a first degree.





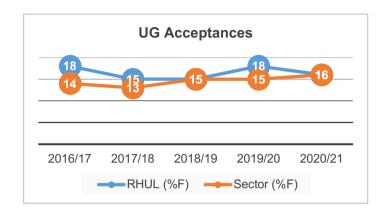


Figure 8. Proportion of female UG applications, offers, and acceptances compared to the Sector (UCAS).



Figure 9. Proportion of female PGT applications, offers and acceptances.

### **Appendix 3: Glossary**

Please provide a glossary of abbreviations and acronyms used in the application.

AS	Athena Swan
AS-WG	Athena Swan Working Group
CompSoc	Computing Society
CS	Computer Science
EDI	Equality, Diversity and Inclusion
EDIC	Equality, Diversity and Inclusion CS Committee
EPMS	School of Engineering, Physical and Mathematical Sciences
HoD	Head of Department
PGR	Postgraduate Research
PGT	Postgraduate Taught
REF2021	Research Excellence Framework 2021
UG	Undergraduate
WISDOM	Women In the Security Domain and/Or Mathematics