Improving gender equality in Science
— a personal perspective from Biology@York

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Bad working practices detrimentally affect women, good working practices benefit all.
Where are we currently?

% of females at different career stages in Biology at York.

representation of females at different career stages

Mean % female over 6 years (2008-2013)

Undergraduate
Postgraduate (Taught)
Postgraduate (Research)
Grade 6 Researcher
Grade 7 Researcher
Lecturer
Senior Lecturer/Reader
Professor

50%
Issues to tackle...

Overall gender parity in appointments, but only ~33% of applicants are female.

Academic recruitment

<table>
<thead>
<tr>
<th>Year</th>
<th>% Female of all applications</th>
<th>Total no. of applications</th>
<th>% Female of all interviews</th>
<th>Total no. of interviews</th>
<th>% Female of all appointments</th>
<th>Total no. of appointments</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>31</td>
<td>48</td>
<td>29</td>
<td>7</td>
<td>50</td>
<td>2</td>
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<td>2009</td>
<td>24</td>
<td>272</td>
<td>8</td>
<td>26</td>
<td>100</td>
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<tr>
<td>2010</td>
<td>34</td>
<td>62</td>
<td>60</td>
<td>5</td>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>2011</td>
<td>48</td>
<td>123</td>
<td>25</td>
<td>8</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>2012</td>
<td>26</td>
<td>180</td>
<td>36</td>
<td>14</td>
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<tr>
<td>2013</td>
<td>28</td>
<td>173</td>
<td>36</td>
<td>11</td>
<td>33</td>
<td>3</td>
</tr>
</tbody>
</table>

Maintained gender parity in recent appointments 2014-15: 6M, 4F
Some progress...

Increase in number of female academics overtime, and higher % of female academics than UK average.

Academic Staff by Grade

<table>
<thead>
<tr>
<th>% female Lecturers</th>
<th>Total no. of Lecturers</th>
<th>% female Senior Lecturers/Readers</th>
<th>Total no.of Senior Lecturers/Readers</th>
<th>% female Professors</th>
<th>Total no. of Professors</th>
<th>Total number of staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>16</td>
<td>25</td>
<td>12</td>
<td>26</td>
<td>19</td>
<td>47</td>
</tr>
<tr>
<td>31</td>
<td>16</td>
<td>18</td>
<td>11</td>
<td>24</td>
<td>21</td>
<td>48</td>
</tr>
<tr>
<td>38</td>
<td>16</td>
<td>17</td>
<td>12</td>
<td>32</td>
<td>19</td>
<td>47</td>
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<tr>
<td>38</td>
<td>16</td>
<td>15</td>
<td>13</td>
<td>29</td>
<td>17</td>
<td>46</td>
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<td>30</td>
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<td>15</td>
<td>32</td>
<td>19</td>
<td>30</td>
<td>20</td>
<td>54</td>
</tr>
</tbody>
</table>
How did we get Gold?

- Enhanced female representation in the Department.
  (#female professors increased from 5 to 7, #female lecturers from 3 to 7 during our Silver period).
- Embedded Athena SWAN principles in the Department.
  (Dedicated resource/budget, larger SAT, ToRs, web site, better data collection/analysis).
- Improved promotions processes.
  (part of annual PR discussions)
- Instigated a sabbatical system for academics.
  (1 term off in 9, also after return from period of leave or onerous job).
- New workload model for academics.
  (Information on teaching available for all to see, more transparency mechanism to help equalise loads).
ATHENA SWAN - GOLD FOR BIOLOGY

The Biology Department at York has been awarded Gold by Athena SWAN and is one of only 3 Departments to have achieved this highest level in the recent round of assessments. It is the first Biology Department in Britain to have received a Gold award.

The Athena SWAN Awards recognise success in supporting the careers of women in science.

For information about Athena SWAN go to:
http://www.athenaswan.org.uk/

Prof Ian Graham, Head of Department says "We are proud to have received this award. It reflects our continuing commitment to Athena SWAN principles, which have become embedded in all aspects of Departmental life. But we are also aware that there is still more to be done and we have new actions that will allow us to continue making progress in future."

Prof Jane Hill, Athena SWAN champion in Biology says, "We are delighted that our actions have resulted in gender parity in academic appointments over the past few years. Approximately 30% of our professors are women, a proportion that is rarely matched in science."

Biology PA Jenny Purcell was nominated for an award.

Jenny got through to the final but unfortunately lost out to Leeds Beckett University.

Jenny said it was really good to be around so many other talented Yorkshire PAs! If's a great annual...
Surveys provide honest feedback about how staff and students view the Department, and ideas for new actions. Currently surveyed academic staff (twice), 2nd year under-grads, PhDs and PS staff. Will keep repeating these.
98% of PhD students think Biology at York is a great place to study for females and males;

**BUT:** >60%F do not think females are equally likely to have a successful career in STEM as males (versus 15%M); **AND:** 17%F have experienced a situation where they have felt uncomfortable because of their gender (versus 0% M).
“Principal investigators are particularly well positioned to influence workplace culture at their field sites.”

Issue of ‘lad culture’  
Dr Vanita Sundaram,  
Centre for Education & Social Justice, UoY
Additional data analyses by gender...

- Research grants *(similar success rates?)*
- UCAS tariff vs final u/g degree mark *(similar chance of 1st class degree?)*
- REF *(equally likely to be returned?)*
- Pay gap analysis *(similar pay?)*
- Teaching feedback scores *(valued similarly by students?)*
- Age at promotion *(longer in previous grade?)*

Data for Biology staff UoY
The proportion of grants submitted by female academic staff in Biology at York is in line with the Department’s gender ratio (~30%), and success rate of women (32%) is similar to men (33%).

But women apply for less funding than men, resulting in men being awarded >£100k more than women on average over the past 6 years in the Biology Dept.

We raise awareness of the issue – but what is the solution?
Improving gender equality?


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"The numbers of women candidates considered for and offered tenure-track positions were significantly higher in the intervention groups compared with those in controls."
In Biology at York we have a commitment to gender equality of speakers in our seminars (6 different seminar series in the Department) during our AS Gold award period.  

Currently ~37% female speakers overall (24/65 speakers).
We found no overall difference in student feedback scores to male and female staff in Biology at York.
References for our students probably demonstrate our unconscious biases.

https://pastspeaks.com/2015/03/31/male-vs-female-academic-reference-letters
“I don’t think they were consciously discriminating,” says Wennerås (author).

“but there’s a tendency to over-value men’s achievements and undervalue women’s.”

Analysis of Sweden’s MRC data revealed that when applying for grants, women have to be 2.5 times more productive than men in order to get the same peer review ratings. Nature 387, 341-343 (22 May 1997)
Future actions

- Better Web presence for E&D
- Standing item at staff meetings
- New gender analyses
- Flexible timetabling of teaching
- Unconscious bias training
- Extend Athena SWAN activities to reach to u/g
- Gender balance on all interview panels (incl. PGR, PDRAs)
- Discuss single gender shortlists
- ‘Beacon’ activities and dissemination of good practise
- Repeat culture surveys & follow-up focus groups
Department of Biology

2016
(~33% female)

1963
(11% female)
Scissor plot...showing improvement?

Representation of Academic and Research Staff at different career stages

<table>
<thead>
<tr>
<th></th>
<th>Mean % Females</th>
<th>Mean % Males</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate</td>
<td>61</td>
<td>39</td>
</tr>
<tr>
<td>Postgraduate (Taught)</td>
<td>41.9</td>
<td>58.1</td>
</tr>
<tr>
<td>Postgraduate (Research)</td>
<td>52</td>
<td>48</td>
</tr>
<tr>
<td>Grade 6 Researcher</td>
<td>53.09</td>
<td>46.91</td>
</tr>
<tr>
<td>Grade 7 and above Researcher</td>
<td>43</td>
<td>57</td>
</tr>
<tr>
<td>Lecturer</td>
<td>30</td>
<td>70</td>
</tr>
<tr>
<td>Senior Lecturer</td>
<td>23.7</td>
<td>76.3</td>
</tr>
<tr>
<td>Professor</td>
<td>28.8</td>
<td>71.2</td>
</tr>
</tbody>
</table>
What has worked for us...

- Share/copy/steal good ideas from other Departments,
- Delegate and get others involved, and regularly feedback to staff on activities
- Obtain data & get analyses done to provide time to reflect on new actions
- Volunteer to sit on (or observe) Athena SWAN judging panels,
- Get resource to support E&D activities from University / Department & get HoD involvement,
- Pick a small number of initiatives to focus on and make progress, don’t try to do too much at once,
- Not giving up...
How to get things done?

University

Faculty

Department

champions

University Equality, Diversity and Inclusion Committee (EDIC)
Chair: VC Prof Koen Lamberts

University Athena SWAN Steering Group (ASSG)
Chair: PVC Research Prof Deborah Smith

Athena SWAN Faculty Champions (for Science; Social Sciences; Arts & Humanities) Prof Jane Hill, Biology

Biology Equality & Diversity Committee (BioEDG)
Chair: Biology E&D champion, Deputy Head of Department Prof Calvin Dytham

LGBTI+ champion attends University LGBTI MATTERS FORUM.

Disability champion attends University INCLUDE group

Athena SWAN champion attends University AS FORUM

BAME champion attends University BAME group
“The companies in the top quartile of gender diversity were 15% more likely to have above median financial returns, relative to their national industry median. Companies in the top quartile of racial/ethnic diversity were 30% more likely to have above median financial returns relative to their national industry median. Companies in the bottom quartile for both gender and ethnicity/race were statistically less likely to achieve above average financial returns than the average companies in the dataset (e.g., they were not just not leading, they were lagging).”
“Papers with four or five authors of multiple ethnicities have, on average, one to two more citations than those written by authors all of the same ethnicity.”

Freeman & Huang (2014) *Nature* 513, 305

Analysis of 2.5 million research papers according to author surnames.
the perspectives provided by both genders within a working group appear to play a fundamental role as authors in increasing the quality of publications produced.”


Analysis of NCEAS (National Center for Ecological Analysis and Synthesis) outputs from Working Groups
Focus on a few initiatives, and know what success will look like

Progress is often slow

Changes that are made may not be permanent

Not everyone is supportive

‘There is not a problem’ (alternatively ‘it’s all been solved’)

‘Things have gone too far – the Biology department is now dominated by women’
We are producing career trees of academics to illustrate a successful career includes many setbacks, that career trajectories may take “the scenic route” to the same goals, that they may not necessarily follow a direct route, and may not necessarily have a pre-determined end point.

We hope this will boost confidence in researcher career choices and provide reassurance. Occasional (or regular) failure is part of a successful career.
We foster a supportive culture that helps all Biology staff and students reach their full potential.

Department of Biology

Athena SWAN Gold Award