

## Russell Group response to House of Commons Education Committee inquiry: The impact of exiting the EU on Higher Education

### 1. Summary

- We welcome the reassurances the Government has been able to give on EU students, Horizon 2020 and regional EU funding so far. Our universities are just as open and welcoming to students, staff and ideas as we were before the EU referendum and we will continue to work with partners across Europe and more widely to boost the UK's international competitiveness.
- Nevertheless, the referendum result will have a significant impact on our universities, which have long thrived on global collaboration and international interaction – be it through European staff and students coming to our universities, or when our best researchers work across Europe to tackle big social and scientific challenges.
- EU staff and students bring crucial expertise and skills, contribute to a diverse student body and culture and ensure the sustainability of certain key disciplines at our universities. They help deliver highly skilled graduates needed to meet labour market demands and maintain the UK's place as a world leader in higher education. This in turn benefits the UK's global competitiveness and also brings a range of benefits to UK students.
- A decline in the number of EU staff and students as a result of Brexit would impact UK students, who would lose out on the benefits of an internationally diverse student body and the expertise of EU staff who enrich the research, teaching and learning environment and student experience by exposing other students and staff to different approaches.
- Significant uncertainty remains for EU staff and students at UK universities regarding the country's future relationship with the EU. In the short-term, the Government should provide clarification as soon as possible on:
  - Confirmation of the continued working rights for current EU staff and their dependants
  - The fee rate and ability to access student loans, grants or other support for EU students (both undergraduates and postgraduates) considering studying in the UK in the transition period before Brexit, particularly those starting in 2018/19
  - Any future changes to the tuition fee rate for EU students post-Brexit, when this might come into effect and reassurance that appropriate transitional arrangements will be put in place
  - Whether students and staff will be able to make applications to the Erasmus+ programme beyond 2017.
- The Government can further reassure the higher education and research community by providing a strong statement of intent that they will prioritise HE and research in the upcoming negotiations, with a particular focus on:
  - Continued mobility of students, academics and university staff between the EU and the UK without bureaucratic visa burdens
  - Continued full access to and influence over EU research and innovation programmes and infrastructures
  - Continued participation in the Erasmus+ programme.

## **2. Overview**

- 2.1 The purpose of The Russell Group is to provide strategic direction, policy development and communications for 24 major research-intensive universities in the UK; we aim to ensure that policy development in a wide range of issues relating to higher education is underpinned by a robust evidence base and a commitment to civic responsibility, improving life chances, raising aspirations and contributing to economic prosperity and innovation.
- 2.2 We welcome the opportunity to provide evidence to this inquiry. Russell Group universities' global outlook has not changed – we have not yet left the EU and our universities are just as open and welcoming to students, staff and ideas as we were before the referendum. Our universities are world renowned as centres of excellence; they will continue to be globally-focused and will engage with the EU in whatever ways they can following Brexit.
- 2.3 However, leaving the EU presents significant challenges for our universities and the referendum result is already having an impact. Examples of UK partners being dropped from Horizon 2020 bids and some academics deciding not to take up job offers or pursue job applications directly cite the Brexit vote as the reason for these decisions. Whilst we welcome reassurances the Government has been able to give so far on EU students, Horizon 2020 and structural funds, further reassurances, support and funding are needed to safeguard the UK's position as a world leader in science and research for the long-term.
- 2.4 The implications of leaving the EU for science and research will inevitably have knock-on consequences for the wider UK economy and on UK students. Russell Group universities contribute over £32 billion a year to the UK economy; they are anchors for growth in their regions and they are crucial to the prosperity of communities throughout the UK. The UK Government should prioritise higher education and research in the negotiations on our future relationship with the EU, including mobility of university staff and students and continued access to EU research programmes, for the benefit of the UK's global competitiveness and future prosperity.

## **3. EU Students**

- 3.1 Excellent EU students are indispensable for world-class universities, contributing to a diverse student body and a thriving society, culture and economy – not just on campus but for the UK more widely. There are 58,000 students of other EU nationalities at Russell Group universities, making up 8% of all undergraduate students and 15% of all postgraduate students.
- 3.2 The strength of UK higher education internationally lies in its quality and diversity, including the ability to attract the most talented staff and students from within and outside the EU. In order for the UK to maintain its status as a world-leader in higher education, we must be able to recruit and retain excellent staff and students from around the world, including the EU.
- 3.3 The Russell Group has been clear that our universities are just as open and welcoming to students as before the referendum and we will continue to promote this message. We also welcome the positive statement made by the Minister of State for Universities and Science recognising that EU and international students make an important contribution to our world-class universities.<sup>1</sup>

---

<sup>1</sup> For example in his statement on Funding support for EU students (11 October 2016): <https://www.gov.uk/government/news/funding-support-for-eu-students>

## **Certainty for EU students and universities**

- 3.4 We have welcomed the reassurances the Government has provided for current EU students and those starting courses in 2016/17 and 2017/18 regarding their fee rates and ability to access loans and grants. However, we are still seeking clarity for postgraduate EU students starting courses in 2017/18. Furthermore, we now need the Government to confirm as soon as possible the status of EU students starting in 2018/19 in terms of their fee rate and whether they will be able to access student loans and grants for the duration of their courses.
- 3.5 Regarding tuition fee rates specifically, we would welcome clarity from Government on plans for any future changes to the fee rate for EU students in order to provide assurance for universities and to help them in their financial and recruitment planning. Currently, EU students are charged the same rate as home UK students because they are listed in the special category in the Education (Fees and Awards) (England) Regulations 2007. Whilst we understand that any decision to change the fee rate for EU students, or to retain home fee status, is being treated as part of the Brexit negotiations, we would welcome an assurance that should any change be made to the fee rate in future, appropriate transitional arrangements will be put in place to protect universities from legal challenge.<sup>2</sup>
- 3.6 Our experience suggests that future cohorts of students will be making decisions now about where to study even though they may not be expecting to start until 2018/19 or 2019/20. This is expected to be a crucial time when negotiations between the UK and the EU may conclude and early notification from the Government on the expected status of these students would be very welcome.
- 3.7 Applications to Oxford and Cambridge, and for medicine, dentistry and veterinary studies at all universities, close earlier than for other universities and courses (in mid-October), so it is important to have a statement on 2018/19 students as early as possible to fit with recruitment cycles. This year, applications from EU students to 'early deadline' universities and courses fell by 9%, ending a trend of annual increases over recent years.<sup>3</sup> While it is too early to know the reasons for the decline, we would be concerned if EU students were deterred from applying because of uncertainties around Brexit and delay in confirming fee/loan arrangements.

## **Future EU students**

- 3.8 It is difficult to predict the extent to which Brexit will impact EU student recruitment in the long term.
- 3.9 Of course we do not believe that all recruitment of European students will come to a halt once the UK leaves the EU; even without EU membership the UK's leading universities will continue to attract some EU students. Given that many EU students already choose to study in the UK instead of their home countries where fees are lower or do not exist, this suggests many EU students may continue to come and study at the UK's leading universities.
- 3.10 However, a number of other factors are also likely to play a part in decision making and thus our ability to attract students from the EU, for example:

---

<sup>2</sup> For example, this could occur if fee rates changed for students who had already started courses because universities are expected to set out information including on the cost of courses when a student receives an offer to study, so making changes to fee rates after this point could be problematic and could contravene CMA guidance.

<sup>3</sup> <https://www.ucas.com/corporate/news-and-key-documents/news/applicant-numbers-%E2%80%99early-deadline%E2%80%99-university-courses-increase>

- EU students may be put off coming to the UK if they are faced with bureaucratic visa burdens and/or if opportunities to go on to further study or work after finishing a course are limited in future
- The rights for EU students' dependants to live and work in the UK may have an impact on their choice of destination of study
- The perception that the UK is unwelcoming towards international students in general is a concern and may have a negative impact on the UK's attractiveness as a study destination
- The increasing availability of higher education provision in English elsewhere in the European Union in countries such as Germany, The Netherlands and Denmark may lead to increased competition for the best students wishing to study in English

3.11 Overseas students (both EU and non-EU) contribute to the economy when they work here after graduation, and are valued by employers. The students themselves also value the opportunity to work in the country in which they studied to gain experience of the business environment and culture before returning home – which also strengthens the future soft power this creates for the UK in the long-run. However, currently, the UK has one of the shortest post-study work periods for international students among key English-speaking and European markets. The UK should aim to move towards a more competitive position on post-study work for international students.

### **Implications for the UK if there were fewer EU students**

3.12 Maintaining a pipeline of highly-skilled graduates (especially postgraduates) in the UK is crucial to supporting innovation and growth and addressing the productivity challenge. While EU students contribute directly by bringing their skills and experience to the UK economy after graduation, they also allow the UK to develop our own pipeline of talent by ensuring courses are financially sustainable and can be offered to home students. If a decline in EU students were compounded with a reduction of non-EU international students as well, this could have far-reaching implications for the future talent needed in the UK economy and how universities are able to operate.

#### *Sustainability of certain key disciplines*

3.13 EU-domiciled students represent 7% of the total student population at our universities but make up a particularly high proportion of students at postgraduate level: 15% of all first-year postgraduate research (PGR) students and 10% of first-year postgraduate taught (PGT) students.

3.14 EU students help ensure the long-term sustainability of postgraduate courses, particularly in higher-cost disciplines where they are highly represented in these subjects. First-year EU students at Russell Group universities account for:

#### On PGR courses:

- 24% of maths students
- 20% of law students
- 19% of computer science students
- 18% of physical sciences students

#### On PGT courses:

- 21% of law students
- 18% of maths students
- 15% of computer science students
- 14% of physical sciences students

[A more complete breakdown of EU students at Russell Group universities by discipline and level of study can be found at **Annex A.**]

3.15 If the numbers of EU undergraduate and postgraduate students were to decrease as a result of the UK's withdrawal from the EU, it is not necessarily the case that they could be replaced easily by UK nationals (particularly in the short term), given the low year-on-year growth of UK students at our universities.

#### *Pipeline of skilled graduates*

3.16 Of those EU students who remain in the UK to work after their studies, the majority hold professional-level jobs in key sectors which underpin the UK's health and prosperity. These new graduates contribute directly through their work and of course also through income tax and national insurance contributions.

3.17 In 2014/15, the cohort of EU students beginning work in the UK after graduating from Russell Group universities were working in the following key industries<sup>4</sup>:

- Healthcare – 19%
- Financial services – 15%
- Computer programming – 14%
- Education – 11%

3.18 A decline in the number of EU students at our universities would impact the pipeline of top graduates into the labour market. This is particularly the case for highly skilled research-trained postgraduates, where EU nationals make up a higher proportion of graduates at this level of study.

#### *Wider economic, academic, social and cultural impacts*

3.19 EU students provide a significant boost to the regional and national economy whilst they are studying. EU students at Russell Group universities generated an estimated £1.2bn for the UK economy and supported over 11,120 jobs across the UK in 2011/12.<sup>5</sup> They also make important contributions to the local economies in the regions.

3.20 Overseas students, including those from the EU and more widely, bring a wide range of social and cultural benefits to the UK, to the advantage of domestic students. UK students benefit from learning in an internationally diverse environment as they experience different values and beliefs, increasing their intercultural awareness. Learning alongside students from around the world can help develop social skills and networks and prepare UK students for life in multicultural Britain, for work and travel overseas, and in particular for future collaborative work and business activity with overseas partners/markets essential for the UK's global ambitions. The expertise of international staff, including those from the EU, enriches the research and learning environment and student experience, introducing different perspectives and intellectual challenge for UK students.

3.21 International students returning home after graduation, including EU students, present an opportunity to foster new international collaborative links at UK universities, as well as contributing to our 'soft power' overseas. Those who study in Britain and return home (or go elsewhere) to work are likely to leave with a positive view of Britain and close personal and professional connections. They typically have enhanced positive perceptions of the UK, its

---

<sup>4</sup> HESA 2014/15 Destinations of Leavers of Higher Education (DLHE) survey

<sup>5</sup> <http://www.universitiesuk.ac.uk/news/Pages/eu-students-vital-to-regional-economies.aspx> However, these numbers are based on 2011/12 data; since then the number of EU-domiciled students at Russell Group universities has grown by 12% and fee income to our universities from EU-domiciled students has more than doubled so these figures are almost certainly an underestimate.

people and culture, especially increased trust in the UK – this ‘soft power’ effect supports cultural and political ties and also has future economic benefits.

## **Suggested actions**

3.22 In order to provide certainty for universities and students and to mitigate some of the negative impacts of the UK’s exit from the EU to recruit talented students from the EU, the Government should:

- Provide clarification as soon as possible on the status of students starting courses in 2018/19, their fee rate and their ability to access student loans for the duration of their course
- Implement a comprehensive communications strategy to promote the message that the UK remains open and welcoming to international students, in recognition of the important contributions these students make to our society, economy and our universities
- Effectively communicate in other EU countries the commitment to provide eligible EU students starting courses in 2017/18 with loans and grants to encourage students to apply for places at our universities
- Confirm the immigration status of existing and prospective EU students and their right to remain in the UK for work or further study post-Brexit
- Establish what fee rate non-UK EU students might move to and when this would come into effect. Students need to know what the costs will be before they start their courses and uncertainty over this could negatively impact international student recruitment.

## **4. Erasmus+**

4.1 The Erasmus+ programme has benefited UK and EU students and universities for many years. Over 15,000 students from UK universities took part in the Erasmus+ programme in 2013/14, nearly half of whom were from Russell Group universities. The programme provides an experience that is valuable both to those individuals and to employers who want graduates with experience of other cultures and language skills.

4.2 Study abroad brings wide-ranging benefits to UK students, such as enhanced communication and language skills and boosted academic performance. Those who study abroad gain confidence and become better equipped academically through exposure to different approaches in institutions overseas. Research by the UK HE International Unit found that a higher proportion of students in the 2013/14 cohort who studied abroad achieved a First Class (1st) or Upper Second Class (2.i) in their degree: 81% compared with non-mobile students 72%.<sup>6</sup>

4.3 Longer-term, study abroad has a positive impact on graduate employability and earning potential as employers increasingly recognise the benefits of international experience such as the ability to communicate and collaborate with people from different cultures and backgrounds. Students who have studied abroad are less likely to be unemployed and are more likely to be employed in senior roles; the average starting salary for those working in the UK was higher for those who had spent time abroad compared to those who had not.<sup>7</sup>

---

<sup>6</sup> ‘Gone International: the value of mobility’ – report on the 2013/14 graduating cohort (February 2016).

<sup>7</sup> *ibid.*

- 4.4 Social mobility, widening participation and encouraging social inclusion are also among the overarching aims of the Erasmus+ programme. Indeed, it is written into EU legislation that *“when implementing the Programme ... the Commission and the Member States shall ensure that particular efforts are made to promote social inclusion and the participation of people with special needs or with fewer opportunities”*. Several of our universities offer supplementary grants specifically for disadvantaged students to undertake an Erasmus+ placement. By providing a fee waiver and a grant for living expenses, the Erasmus+ programme provides an opportunity for lower-income students to go abroad who may not otherwise have the means to do so.
- 4.5 Russell Group universities have numerous international exchange programmes for students and staff and are by no means limited to European programmes in this respect. However, programmes like Erasmus+ are valuable to universities not only because they encourage and facilitate the mobility of staff and students, but because they can also provide a useful platform on which institutions are able to build a wider set of exchange programmes around the world.
- 4.6 It is difficult to imagine how a Europe-wide exchange programme on the scale of Erasmus+, and with a similar level of funding, could be implemented on a national level. Since Erasmus+ is funded by the EU with centralised rules and funding agreements, it is likely to be less costly than if universities were to try and replicate the system themselves and arrange bilateral exchanges with one another, which might then create a different set of rules for each individual agreement.
- 4.7 The Government has confirmed the referendum result does not affect beneficiaries of Erasmus+ or those considering applying in 2017, but there is currently no clarity beyond the end of that year. We look for the Government to negotiate continued access to the Erasmus+ programme beyond 2017 as part of its future relationship with the EU.

## 5. EU university staff and research

- 5.1 A strong base of talent from Europe and across the world enables research-intensive universities to remain globally competitive and is fundamental to the excellence in research, innovation and education that helps to drive economic growth. One fifth of Russell Group academics are EU nationals and, amongst other things, they bring diverse approaches to tackling complex global challenges. **Annex B** contains a few illustrative examples of the contributions EU staff at Russell Group universities have made to the UK and our universities.
- 5.2 EU staff members bring vital expertise and skills to the UK: 88% of EU staff at our universities are in managerial, professional, associate professional and technical occupations and 70% of EU staff at our universities are on academic contracts, making up 21% of all Russell Group academic staff.
- 5.3 Around 36% of EU staff at Russell Group Universities are in teaching roles – passing on their knowledge to the UK’s future workforce – and an even larger proportion are employed on research contracts; enriching the nation’s knowledge base and driving our world-leading research performance.
- 5.4 EU staff members in non-academic roles bring vital skills to the UK and make up around 6% of all non-academic staff at Russell Group universities. Many of these non-academic staff will hold highly skilled posts as lab clinicians and technicians, engineers and senior managers and administrators, in addition to a small number in support roles which are equally important to the running of our institutions.

## EU staff currently in the UK

- 5.5 We welcome the Government's confirmation there will be no immediate changes to the circumstances of EU nationals currently in the UK, including those studying or working at UK universities. Russell Group universities have also been reassuring their EU staff and students about this.
- 5.6 However, there is understandably a high degree of uncertainty, and feedback from our members shows that some prospective staff (both from within and outside the EU) are now changing their minds about continuing with job applications or accepting work contracts because of the Brexit vote. A number of factors contributing to this problem may lead to a decline in the number of EU staff coming to our universities including:
- Uncertainty over the future status of EU nationals living and working in the UK (this applies not only to university staff, but to their dependants as well)
  - Uncertainty over the UK's future access to EU funding – being eligible for Horizon 2020 and in particular ERC grants is an advantage of working at UK universities
  - A perception that the UK is unwelcoming to people from abroad, heightened by an increase in reported xenophobic and racist incidents since the referendum.
- 5.7 Future immigration arrangements for EU migrants following Brexit are currently uncertain. However, if EU migrants are required to meet the same conditions as other migrant workers entering the UK under the current points-based system, this could have a significant impact on EU staff at our universities:<sup>8</sup>
- Based on analysis of HESA data, we estimate that approximately 5,880 EU staff members at our universities (roughly 26%) are likely to earn under £30,000 and therefore would not meet current Tier 2 eligibility requirements.<sup>9</sup>

## Implications for the UK if there were fewer EU university staff

### *Sustainability of certain key disciplines*

- 5.8 Overseas academics play a critical role in educating future generations and training a highly skilled workforce in the UK. Many of the overseas academics our universities attract are leading experts in economically valuable and strategically important subjects. The provision of highly-skilled STEM graduates and postgraduates is vitally important to the prosperity of the UK, helping to generate innovation and new technologies, and to drive future economic growth. EU academics also play a vital role in undertaking research in and teaching strategically important modern European languages.
- 5.9 EU staff members make up 21% of academic staff at Russell Group universities, but are highly represented in the following disciplines:
- Economics – 38%

---

<sup>8</sup> The eligibility requirements include: meeting the minimum salary requirement for the Tier 2 Skilled Migrant route which will move to £30,000 in April 2017; attracting a sufficient number of points based on salary (and on the basis of applying for a PhD-level position, where applicable) to be granted a visa should the 20,700 annual Tier 2 cap be over-subscribed; and meeting a minimum skill level (NQF 6 – graduate level position).

<sup>9</sup> Salary Band 3 includes staff earning ≥£24,057 & <£32,277. Assuming staff within this band earn salaries that evenly span this salary band, roughly 75% of staff within this band would be affected by Tier 2 eligibility requirements as they are likely to earn £30k or less (£30k is roughly 75% of the way into this salary band).

- Modern languages – 35%
- Mathematics – 31%
- IT, systems sciences & computer software engineering – 29%
- Chemical Engineering and Physics – 27% each
- Biosciences and a number of social science disciplines – 26%

5.10 If our universities are not able to recruit the most talented academics and teachers from across the world, including from the EU (either because they do not want to come to the UK or because the UK visa and immigration system poses barriers), this will have significant knock-on consequences for training future graduates in these key subjects and the UK's national ambition to boost productivity and economic growth.

5.11 UK nationals would not necessarily be able to replace any shortfall in EU academics in these subjects as they are unlikely to have the specialist skills, expertise and experience to match those brought to the UK by excellent European academics who will have won their current positions through competitive recruitment.

#### *Maintaining the competitiveness of UK research*

5.12 Knowledge is not bound by national borders and it is essential for universities to be able to attract the most talented individuals in their fields from anywhere in the world. Overseas researchers and PhD students are essential in refreshing the UK's research base, and in maintaining and developing our position as a world-leading research nation.<sup>10</sup> Evidence shows the primary driver of research excellence is excellent researchers.<sup>11</sup> If we are not able to attract and retain leading academics, researchers and other professional staff from across the globe then this will have consequences for the UK's position as a world leader in research, innovation and education – and on our ability to attract inward investment. A particular concern for research-intensive universities is the recruitment of post-doctoral researchers, which is linked directly to the availability of research funding.

5.13 EU academics working at British universities win a disproportionately high proportion of EU research funding which is allocated based on excellence, a clear indication of the high-quality research they produce and their value to UK universities.

- Nearly half (48%) of European Research Council (ERC) grantees at UK institutions are of non-UK nationality and more than 50% of the prestigious European Research Council Consolidator Grants awarded to UK universities, worth up to £2 million each, were won by EU academics working here.
- Selection rates for the Research Excellence Framework (REF) 2014 were highest for EU staff at UK universities, again a clear indication of the high-quality research they produce and their value to the UK: in REF 2014, 75% of EU staff were selected, compared with 56% of UK nationals and 70% of non-EU staff.

5.14 Academics are globally mobile and there is a concern that leaving the EU could create an added impetus for UK researchers and academics to move overseas should the Brexit agreement not support the competitiveness and ambitions of our universities.

---

<sup>10</sup> International Comparative Performance of the UK Research Base 2013: report prepared by Elsevier for BIS

<sup>11</sup> For example see *Growing the best and brightest: The drivers of research excellence*, a report produced for the Department of Business, Innovation and Skills (BIS) by Economic Insight (2014).

## Suggested actions

- 5.15 In order to provide certainty for universities and staff and to mitigate some of the negative impacts of the Brexit vote, the Government should:
- Confirm the continued working rights post-Brexit for current EU staff (and their dependants) currently at UK universities (both academic and non-academic), and for those who take up positions during the transition period before the UK has left the EU. We would want staff and their dependants to retain the same rights to stay and work without a visa that they have now (with no time limit placed on this).
  - Implement a comprehensive communications strategy to promote the message that the UK is open and still looking to attract talented academics and others from across the globe, in recognition of the valuable contributions these people make to our leading universities and to the wider UK economy and society.
- 5.16 In the negotiations on the UK's future relationship with the EU, the government should prioritise the continued mobility of academics and university staff between the EU and the UK without bureaucratic visa burdens so that they can continue to make a valuable contribution to the success of our universities and benefit the UK economy and society.
- 5.17 There may also be opportunities to strengthen wider international research and education links going forward as the Government is engaging more intensively with countries such as the US and Australia following the referendum. The EU has a number of bilateral science and technology agreements with countries including China, India, Japan and Canada. As the UK prepares to leave the EU it should be a priority for the Government to ensure there are good frameworks in place to enhance and facilitate scientific and higher education collaborations with a broad range of international partners, which may include more strategic partnerships with individual EU countries.

November 2016

## Annex A – First-year EU students at Russell Group universities by discipline and level (2014-15)

|                                | First-year EU-domiciled students at RGUs<br>by discipline and level of study |           |             |            |             |            | Total first-year students at<br>RGUs (UK, EU and non-<br>EU) by discipline and<br>level of study |               |               |
|--------------------------------|--|-----------|-------------|------------|-------------|------------|--|---------------|---------------|
|                                | UG   |           | PGT         |            | PGR         |            | UG   | PGT           | PGR           |
| <b>Disciplines</b>             | <b>Sum</b>   | <b>%</b>  | <b>Sum</b>  | <b>%</b>   | <b>Sum</b>  | <b>%</b>   | <b>Sum</b>   | <b>Sum</b>    | <b>Sum</b>    |
| Medicine/dentistry             | 235  | 3%        | 410         | 8%         | 265         | 11%        | 7,590  | 5,390         | 2,460         |
| Subjects allied to<br>medicine | 440  | 3%        | 325         | 5%         | 165         | 12%        | 13,565   | 6,020         | 1,390         |
| Biological sciences            | 725  | 6%        | 410         | 12%        | 435         | 16%        | 12,425   | 3,545         | 2,785         |
| Veterinary science             | 10   | 1%        | 5           | 11%        | 10          | 13%        | 810  | 45            | 75            |
| Agriculture & related          | 15   | 3%        | 45          | 5%         | 15          | 10%        | 470  | 840           | 155           |
| Physical sciences              | 440  | 4%        | 375         | 14%        | 560         | 18%        | 10,170   | 2,765         | 3,130         |
| Maths                          | 305  | 5%        | 295         | 18%        | 150         | 24%        | 5,605  | 1,670         | 615           |
| Computer science               | 575  | 15%       | 400         | 15%        | 150         | 19%        | 3,805  | 2,730         | 770           |
| Engineering & tech             | 895  | 8%        | 715         | 10%        | 475         | 15%        | 11,815   | 7,345         | 3,165         |
| Architecture/planning          | 140  | 7%        | 265         | 9%         | 35          | 11%        | 2,090  | 2,950         | 305           |
| Social studies                 | 1,265  | 8%        | 1,720       | 14%        | 320         | 19%        | 15,615   | 12,435        | 1,670         |
| Law                            | 430  | 6%        | 1,115       | 21%        | 75          | 20%        | 6,795  | 5,405         | 375           |
| Business & admin               | 865  | 9%        | 1,715       | 9%         | 80          | 15%        | 10,035   | 19,970        | 550           |
| Mass comms                     | 80   | 9%        | 195         | 9%         | 20          | 18%        | 885  | 2,145         | 110           |
| Languages                      | 665  | 5%        | 415         | 12%        | 230         | 17%        | 13,625   | 3,530         | 1,355         |
| History & philosophy           | 450  | 4%        | 345         | 11%        | 190         | 14%        | 10,655   | 3,090         | 1,390         |
| Creative arts & design         | 180  | 5%        | 110         | 6%         | 45          | 13%        | 3,740  | 1,845         | 360           |
| Education                      | 60   | 1%        | 525         | 4%         | 50          | 5%         | 4,910  | 14,595        | 970           |
| Combined degrees               | 130  | 2%        | 0           | 0%         | 0           | 0%         | 5,745  | 110           | 0             |
| <b>Total</b>                   | <b>7905</b>  | <b>6%</b> | <b>9385</b> | <b>10%</b> | <b>3270</b> | <b>15%</b> | <b>140,350</b>   | <b>96,425</b> | <b>21,630</b> |

Note: The darker the shade of blue, the higher the proportion of EU students enrolled on that particular course at a particular level

## **Annex B – A few illustrative examples of contributions EU staff at Russell Group universities have made to the UK**

EU academics make an extremely valuable contribution to the UK's science base and to the development of knowledge, ideas and innovation at Russell Group universities. Their positive contributions have had a significant impact on teaching, research and many other areas of university activity, with wider benefits to the UK economy, culture and society.

The ability of universities to recruit staff and to attract students from other EU countries without having to negotiate the UK visa system, with the attendant expense and administrative burden for both parties, is incredibly valuable. Below are some illustrative examples of the important contributions made by leading European researchers at Russell Group universities:

### **Professor Zoltán Takáts, Imperial College London**

A scalpel that tells surgeons immediately whether the tissue they are cutting is cancerous or not was developed by Hungarian researcher, Professor Zoltán Takáts, at Imperial College London – transforming cancer surgery and saving lives. Professor Takáts' cutting-edge research was made possible by European Research Council grants that helped to take the original research idea through to market.

Surgery is often the most effective treatment for cancer. But even the best surgeons can find it impossible to know if they have removed all traces of cancerous material. The iKnife can tell surgeons whether the tissue they are cutting is cancerous or not. As it cuts it 'sniffs' out cancer and even cross checks the exact type of tissue being cut with a database. Diversifying the research, the technology was sold to the US Waters Corporation in a deal that is expected to see tens of millions of dollars of new investment to the UK.

Professor Takáts said: "Britain's EU membership made moving to Imperial an easier, more attractive proposition. European funding and collaboration has helped drive my research forward. Developing new medical technologies in Britain as an EU member-state gives us immediate access to a market covering 28 countries. If the UK left Europe it would become harder to operate at this scale."

### **Professor Sir Christopher Pissarides, London School of Economics and Political Science**

A Nobel laureate, economic trail-blazer and former president of the European Economic Association, Cypriot academic Professor Sir Christopher Pissarides has brought his expertise to his posts at the London School of Economics and Political Science (LSE) since 1976.

Awarded the Nobel Prize for economics in 2010 (jointly with Peter Diamond and Dale Mortenson) he currently holds the post of Professor of Economics and Political Science as well as Regius Professor of Economics. His work in the development of theories surrounding search frictions and macroeconomics helps us to understand the interactions between policy making and regulation with unemployment, job vacancies and wages.

The economic theories he has helped to develop form the basis of most graduate curricula around the world. He writes extensively in professional journals, magazines and the press, and is often cited as an expert on issues concerning the Eurozone and the future of European integration in the national media.

He is an elected Fellow of the British Academy, the Academy of Athens, the Academia Europaea and a Lifetime Honorary Member of the American Economic Association. He was knighted in 2013.

### **Professor Robert Huber, Cardiff University**

Spearheading the development of Structural Biology at Cardiff University since 2006 Professor Robert Huber is a leader in the field of biochemistry. A German scientist, he was awarded the Nobel Prize in Chemistry in 1988. Since taking up his post at Cardiff he has shared his expertise with undergraduates and postgraduates. With experience of starting and leading one of the world's best crystallography laboratories and making a series of breakthroughs in biochemistry his appointment to Cardiff University was described as world class and indicating the university's intent to become a leading centre of chemical biology research.

### **Dr Roxana Carare, University of Southampton**

At the forefront of research into neurodegeneration Dr Roxana Carare has been awarded the Dementia Research leader's Award by the Alzheimer Society. A Romanian national Dr Carare works from the University of Southampton, where she completed her PhD in 2006. Her work on neurodegenerative diseases that affect the ageing brain have also garnered her international recognition by demonstrating the ways that metabolic waste products are eliminated from the brain. She is now working on manipulating the pathways along which the waste drains with the ultimate goal of preventing personally and socially devastating conditions, like Alzheimer's.

Dr Carare is a medically trained associate professor who also teaches clinical anatomy to undergraduate and postgraduate medical students. She has been honoured by the Romanian Government as an Honorary Consul and is an advisor for Age UK.

### **Dr Paola Crippa, Newcastle University**

Italian national Dr Paola Crippa, from Newcastle University, was awarded a prestigious L'Oréal-UNESCO National 'For Women in Science' Fellowship in 2015, a programme that promotes and rewards outstanding female early career scientists. Her research integrates model results with ground and satellite-based observations to more accurately predict population exposure to harmful concentrations of hazardous particulate matter in the air. Results from her research will help to plan for strategies to mitigate impacts on human health in densely populated areas affected by wildfires. According to the World Health Organisation 3.7 million people, mostly in the developed world, die each year due to the exposure to atmospheric air pollutants. Dr Crippa is working to understand how particulate matter from wildfires is transported over Equatorial Asia and contributes to regional air pollution phenomena. This project makes use for the first time of high resolution simulations from a state-of-the-art regional atmospheric chemistry model to capture both urban and regional scale air pollution features.

### **Professor Dimitrios Nikolopoulos, Queen's University Belfast**

Professor Dimitrios Nikolopoulos is a Greek computer scientist working in the field of high performance computing. Professor Nikolopoulos joined the School of Electronics, Electrical Engineering and Computer Science at Queen's University Belfast as Director of Research for the High Performance and Distributed Computing Research Cluster. His research has improved the performance and energy efficiency of new cutting-edge supercomputers with applications ranging from healthcare to meteorology. His research has received more than £50 million in highly competitive research funding from a wide range of sources including the Royal Academy of Engineering, the European Commission and the private sector.