University of St Andrews | FOUNDED 1413

Outcome Agreement 2021-22

1. Introduction

1.1. The University of St Andrews, as Scotland's first university, stands for research and teaching of the highest quality and the pursuit of knowledge for the common good. Our fundamental goal is to attract and nurture the best staff and the most promising students from around the world and provide an environment in which they can produce their best work for maximum societal benefit.

1.2. Over the past two years, the sector has been significantly impacted by the consequences of Covid-19. The safety of our students, staff, and community continues to be our overriding priority, whilst we focus on excellence in teaching and research.

1.3. Despite the challenges of the pandemic, we made history this year by ranking as the top university in the United Kingdom, according to The Times and Sunday Times Good University Guide 2022[1]. The University is also ranked 91 in the world in the latest edition of the QS World University rankings[2], an improvement of 5 places on last year. We were also placed as the UK's top university for the thirteenth time in the past fifteen years in the National Student Survey[3] and were the only mainstream multi-faculty institution to achieve an above 90% satisfaction rating during the pandemic.

1.4. For 2021-22 entry, we achieved another first, 14.8% of the Scottish domiciled UG entrant population were from SIMD20 backgrounds (up from 9.5% in 2020-21). In section 5 of this Outcome Agreement, we provide more on our plans and ambitions.

1.5. Colleagues from across the University are supporting the post-pandemic recovery at global, national, and local levels. As an example, our researchers are members of SAGE and the First Minister's Environmental Council. Members of our senior leadership team, including the Principal at the forefront, are engaged directly with Government in shaping the sector's response.

1.6. As we begin to plan ahead, we will commence a refresh of our university Strategy. The new Strategy for 2022-27 will have the themes of World-leading, Sustainable, Diverse, Digital, and Entrepreneurial St Andrews. We are engaging our community as we progress this work.

1.7. This transitional Outcome Agreement summarises our contributions for the year in progress in line with the College and University Outcome Agreement Guidance for 2021-22[4].

[1] https://www.thetimes.co.uk/article/good-university-guide-in-full-tp6dzs7wn
[2] https://www.topuniversities.com/university-rankings/world-university-rankings/2022
[3] https://news.st-andrews.ac.uk/archive/st-andrews-top-for-student-experience-2/
[4] https://www.sfc.ac.uk/publications-statistics/guidance/2021/SFCGD222021.aspx

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2. Contributing to economic recovery and social renewal

2.1. Responding to the post-pandemic recovery in our region and across Scotland is a social and moral imperative that we take seriously. We will develop our research, education, and partnerships to advance a sustainable future here and continue to contribute to Scotland's prosperity.

2.2. The University continues to support the economic recovery as one of the major employers in Fife. In the current academic year, the university directly employs 2699 FTE, an increase of 4% compared with pre-pandemic levels in 2018-19. Our innovative Eden Campus, based in Guardbridge near St Andrews, indirectly employs over 30FTE (from 4 in 2018-19).

2.3. Our staff and our students have sought to support the wider community throughout the pandemic. Our medical students are increasing capacity in surgeries, hospitals and in other healthcare settings. Our University Community Fund[5] provides financial support to deliver tangible benefits for our local community. It aims to: increase engagement between the University and the community; promote knowledge exchange and widening participation; promote environmental sustainability; promote diversity and inclusion; and celebrate local heritage, physical and cultural.

2.4. Our upskilling effort is directed to support businesses and employees in our region recognising that the pandemic has had a devastating impact on some. Our refreshed upskilling portfolio[6] includes a suite of flexible courses and the funding available is targeted at people out of work, those concerned to return or remain in work, or recent arrivals into the area who are looking for work, including refugees and asylum seekers.

2.5. We know that the demand for lifelong learning is a key priority, as is upskilling a workforce that is engaged in work for longer. The policy incentives in development for the sector will need to be targeted at outcomes and flexibility to allow for different solutions to emerge across the varied landscape of needs and providers.

2.6. Our Entrepreneurship Centre was opened earlier this year to stimulate start-ups from students and staff. Through the Centre and the wider aspirations at Eden Campus we aim to create opportunities for industry and academia to innovate and bring to market solutions tackling fundamental challenges facing society. Four bespoke 8-week programmes[7] have been launched for students and staff:

- FastStart Innovators – for those interested in commercial businesses
- FastStart Changemakers – for those interested in social enterprise
- FastStart Web Development – for beginners, interested in learning introductory coding skills
- FastStart Cloud Computing – for beginners to learn about cloud architecture,

[5] https://www.st-andrews.ac.uk/community/community-fund/
[6] https://www.st-andrews.ac.uk/subjects/upskill/
[7] https://st-andrews.startuptree.co/page/programmes-overview

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2.7. Last year, the university introduced Vertically Integrated Projects[8] into the Undergraduate curriculum. These enable students and staff to work together in multidisciplinary and multigenerational teams in ongoing research projects and students to develop a range of highly valued transferrable skills for credit. For 2021-22, we have a series of environmental sustainability themed projects in progress: Biodiversity Literacy, Carbon Management, Environmental Ethics at Work, and Dolphin Acoustics.

3. Climate emergency

3.1. The University of St Andrews places environmental sustainability and responding to the climate emergency at the heart of all we do. Our leadership team has committed to developing 'Sustainability' as a theme in the forthcoming University Strategy 2022-27 and to becoming Net Zero by 2035.

3.2. Our approach to the climate emergency goes beyond reducing carbon. We are aiming to be 'Sustainability Positive' which includes enhancing biodiversity and using our education and research to change the world around us.

3.3. In November 2021, St Andrews was crowned 'Sustainability Institution of the Year' in the EUAC UK and Ireland Green Gown Awards[9], which recognise exceptional sustainability initiatives undertaken by universities and colleges. In addition, our 'The Third Generation Project' won the award for Student Engagement[10].

3.4. We are developing our Eden Campus as a hub for low carbon technologies. We have a Simulation Facility which enables us to model and visualise environmental challenges and their solutions. Through our Industry Club, we engage other businesses and organisations at the Campus.

3.5. A carbon neutral Eden Campus is a significant milestone for the University. The installation of a solar EV facility has been completed – all the electricity consumed in our new professional services building (Walter Bower House) is generated on the Eden Campus. The combined energy supplies from this new facility and the existing biomass heating network will give us 67% of our needs at Eden Campus by Christmas 2021. The University is investigating funding opportunities to invest in innovative battery technology that would take this self-sustainability for energy above 90%.

3.6. Our innovative solution to building capacity in carbon sequestration will be through a sector-leading nature-based St Andrews Forest[11]. In addition to trees, we are looking at other nature-based options such as peatland restoration.

3.7. At the start of academic year 2021-22 we launched StACEES[12] - the St Andrews Network for Climate, Energy, Environment and Sustainability - to build an institutional structure for ambitious,

[8] https://www.st-andrews.ac.uk/education/vip/
[9] https://www.sustainabilityexchange.ac.uk/green_gown_awards_2021_sustainability_instituti4
[10] https://www.sustainabilityexchange.ac.uk/green_gown_awards_2021_student_engagement_unive3
[11] https://news.st-andrews.ac.uk/archive/st-andrews-forest-plants-new-energy-future/
[12] https://stacees.ac.uk/

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lasting research that positions the University and its partners at the centre of international conversations on climate change, energy research and environmental sustainability. We continue to build our successful Centre for Energy Ethics[13].

3.8. We are constantly embedding environmental sustainability into our curriculum. Training in Environmental Sustainability Action (TESA) is now in its second year, with every University student completing an online module on Environmental Sustainability.

3.9. In summer 2021, and aligned with our upskilling commitments, the University piloted a summer lecture series focused on sustainability research and practices. The course, which attracted attendees who were not eligible for funding in addition to students who were SFC funded, explored the concept of 'sustainability' across five interactive lectures from different perspectives, including biology, earth sciences, people, policy, economics, and ethics.

3.10. The University was confirmed as an Observer NGO at COP26[14]. Its delegation included both staff and students. Colleagues played various roles within the conference itself as expert attendees, particularly in the fields of hydrogen and marine science.

3.11. COP26 activities[15] were also organised to both galvanise action within the University and engage the wider community. The full suite of activities was planned in alignment with the three main COP26 themes: St Andrews' journey to net-zero and the future of energy; the power of nature-based solutions to tackle climate change; St Andrews for climate justice.

4. Equalities and inclusion

4.1. The University of St Andrews prioritises diversity and inclusion as part of its Strategy. It continues to make important progress across multiple aspects of equality, diversity, and inclusion with ambitious aspirations[16] articulated in our Equality Outcomes Action Plan 2021-2025[17] .

4.2. Our actions not only comply with the Equality Act (2010), Public Sector Equality Duty (2011) and the Scottish Specific Duties (2012), but also aim for EDI accreditation, which acts as a self-evaluation of the University's EDI progress benchmarked against the rest of the sector. The Action Plan will deliver the following outcomes:

- Outcome 1: Increasing the proportion of under-represented staff recruited
- Outcome 2: Making a University that is accessible and which is recognised as encouraging diversity, and the appreciation of diversity, in our staff, students, and suppliers.
- Outcome 3: Creating a studying, visiting, and working environment where students, staff and visitors feel welcome and supported, whatever their background and characteristics.
- Outcome 4: Designing systems of reward and recognition for staff and students that ensure fair treatment of all, whatever their background and characteristics.

[13] https://energyethics.st-andrews.ac.uk/
[14] https://ukcop26.org/
[15] https://cop26.wp.st-andrews.ac.uk/
[16] https://www.st-andrews.ac.uk/hr/edi/equalityschemeandpolicies/reports/
[17] https://www.st-andrews.ac.uk/media/human-resources/equalitydiversity/StAndrews-Equality-Mainstreaming-Report-29April2021.pdf

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- Outcome 5: Securing greater diversity in governance, management, and leadership.

4.3. The University currently holds the following accreditations and awards: Athena Swan (including a Bronze institutional award and 19 departmental awards, including one gold and two silver awards); Carer Positive Employer award; LGBT Charter; Business in the Community Race at Work Charter; and Stonewall Diversity Champion.

4.4. We have commissioned an externally led review of race and ethnicity in the University, to assess the progress made in this key area of Diverse St Andrews, and to provide a baseline for the next phase and the University's application for the Race Equalities Charter.

4.5. Our Equality, Diversity and Inclusion Policy[18] is considerate of changing terminology, links to relevant external policies and guidance, and ensures we publish and report to monitor the effectiveness of our EDI initiatives. As part of the University's strategic priority to drive forward our diversity agenda, we publish annual EDI indicators[19] alongside long-term trend analysis and responses to qualitative and quantitative EDI surveys. We are choosing to publish this material because we are committed to:

- Placing diversity and inclusion at the heart of the St Andrews experience for staff and students
- Being as transparent as possible about the extent to which our staff and student community is diverse
- Closing any identified gaps in participation, retention, progress and performance
- Providing an opportunity for the University community to engage with this information

4.6. As part of our commitment to reducing the gender pay gap, we have published for the fourth time, comprehensive information[20] in line with the UK Government requirements (from which Scottish universities are exempt). We will continue to do this as a statement of our intent to confront inequalities wherever they exist and to be as transparent about progress.

4.7. As a pilot institution for the EmilyTest Gender Based Violence charter[21], we are working with the organisation to make the consent and bystander intervention module, developed by students and staff, available to other universities.

4.8. The University also offers a range of online training modules titled Diversity in the Workplace, Recruitment & Selection and Unconscious Bias.

4.9. Our Race Equality Working Group continues work to address issues impacting on recruitment, retention, attainment and making organisational changes. Actions underway also include:

- An audit of inclusive curriculum initiatives currently active across the University, with a focus on race and ethnicity.

[18] https://www.st-andrews.ac.uk/policy/staff-equality-diversity-and-inclusion-review/equality-policy.pdf
[19] https://www.st-andrews.ac.uk/about/edi-progress-reports/
[20] https://www.st-andrews.ac.uk/about/edi-progress-reports/gender-pay-gap-report-2020/
[21] http://emilytest.co.uk/gbv-focus-groups/

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- BAME students from St Andrews give recruitment presentations at secondary schools and review all our marketing material.
- St Andrews was the only Scottish university to have advertised vacancies in publications including the Windrush Magazine, the Black History Month Magazine and website, and the BAME Education and Careers Guide magazine.
- Since 2016, the University has supported staff to take part in the Advance HE Diversifying Leadership (BAME) programme.
- Launch of St Andrews' Staff BAME Network.

4.10. In 2021, the University of St Andrews BAME Students' Network[22] published its first Action Plan Report[23]. Conceived and produced by 20 BAME students at St Andrews, the report has a threefold aim; accepting and presenting the problem, suggesting actions to make changes, and holding University members and others accountable.

5. Fair access and transitions

5.1. In line with our long-term strategy[24] and the recommendations set out in the Commission on Widening Access[25] (CoWA) report, we are committed to improving access to the University for those with a background of social and economic disadvantage, whether this relates to their place of education, family background, or home location. We are committed to supporting our students to succeed whilst they are part of our community.

5.2. Our Principal, via her leadership of the Universities Scotland Admissions Policy Group, and membership of the restarted Scottish Government Access Delivery Group, is progressing the sector's work to widen access to higher education, including activities related to the Commission on Widening Access recommendations.

5.3. Over the past decade, the proportion of Scottish-domiciled full-time undergraduate entrants from SIMD20 areas in St Andrews has risen from 3.6% (2011/12) to 14.8% (2021/22). Due to the anticipated longer-term impact of the pandemic and uncertainties regarding school leaver grading and entrant numbers, in the coming years, we plan to maintain our focus on embedding the successes of the last decade and aim to ensure our percentage of entrants from SIMD20 areas is greater than 12%, exceeding the minimum institutional expectation per recommendation 34 of the CoWA report.

5.4. At a sector level, there is a need to refresh the suite of Widening Access measures, to ensure they reliably identify those in most need of support to progress to higher education. These measures rely on access to robust information to help universities capture as much detail about individual disadvantage as is necessary. For example, an important missing piece of information is that relating to individuals eligible for Free School Meals. This is an area in which Scotland lags

[22] https://www.yourunion.net/representation/subcommittees/BAME/
[23] https://www.yourunion.net/representation/subcommittees/BAME/action-plan/
[24] https://www.st-andrews.ac.uk/study/access/
[25] A Blueprint for Fairness (CoWA report)

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behind the rest of the UK, and one that we call on the Scottish Government and Scottish Funding council to address as soon as possible.

5.5. Our admissions policy[26] offers a variety of flexible entry options and alternative entry routes for applicants with different circumstances. Our process continues to contextualise applications using access markers and includes a guarantee of an offer[27] for certain qualified applicants. Our Entry Qualification Indicator tool[28] assists prospective applicants in identifying which of the three categories of entry requirements they will be expected to meet. These categories are reviewed annually to ensure the requirements are robust and clear.

5.6. Our 2021-22 intake of access flagged Scottish-domiciled undergraduate entrants, as part of contextual admissions[29], reached 57.7%. This is above the 40% target we set in 2018.

5.7. People with experience of care are supported to succeed and the University remains committed to a range of activities to support pupils, applicants, and students with a background of being in care. In 2021-22, the University has 69 students registered with a declared care-experienced background.

5.8. The University is a member of the Local Authority Corporate Parenting Group and contributes to its strategic plan. Further information is available in n our Corporate Parenting plan [30].

5.9. In alignment with the Stand-Alone Pledge[31], we support estranged students (where they are known to us) by prioritising 12-month University accommodation, discretionary funding, and other bursaries to support these students financially.

5.10. We continue to support students from widening access backgrounds in their transition to St Andrews as well as throughout their studies at the University. We offer a full transition programme with taster days along with a first-year mentoring programme for all students with access criteria and for those with a household income of less than £34,000 we provide a bursary of £1,500 for every year of study.

5.11. Our commitment to fair access extends beyond the undergraduate cohorts. We have introduced Doctoral scholarships this year (utilising donor funds) with care experience as one of the eligible criteria. We also offer widening participation Masters and PhD[32] studentships, with full tuition fee and stipend to eligible students, creating a funded pathway to doctoral levels.

5.12. As one of two Universities of Sanctuary in Scotland[33], we commit to supporting refugees and asylum seekers to come to St Andrews and providing a welcoming and inclusive community. The University launched a new Sanctuary Scholarship[34], specifically designed to support

[26] https://www.st-andrews.ac.uk/policy/student-administration-admissions/admissions-policy.pdf
[27] https://www.st-andrews.ac.uk/subjects/entry/academic-entry-explained/
[28] https://www.st-andrews.ac.uk/subjects/entry/indicator
[29] https://www.st-andrews.ac.uk/subjects/entry/contextual-admissions/
[30] Care experienced students and Corporate Parenting
[31] http://www.thestandalonepledge.org.uk/ and https://www.st-andrews.ac.uk/study/apply/estranged/
[32] https://www.st-andrews.ac.uk/study/fees-and-funding/postgraduate/scholarships/research-widening-access/
[33] https://www.st-andrews.ac.uk/study-abroad/sanctuary/
[34] https://www.st-andrews.ac.uk/study/fees-and-funding/postgraduate/scholarships/sanctuary-scholarship-pg/

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undergraduate and postgraduate applicants who are seeking sanctuary in the UK. Applicants are eligible if they have a forced migration background, as well as a relevant immigration status (such as Asylum seeker or refugee). Six scholarships were offered for 2021-22. Our Principal is a member of the Universities of Sanctuary Senior Leaders national group.

5.13. As part of our admissions processes, prior learning is always considered, and students are offered the best pathway for them. Our Recognition of Prior Learning[35] Officer provides guidance directly to applicants. Transitions and pathways for students are supported and signposted.

5.14. Our outreach and engagement with schools, SFC funded programmes and local communities ensure we can support successful pathways and effective transitions for students. We continue to work in partnership with schools, the SFC, charitable partners, donors and local communities within our Access projects to support successful pathways and transitions for students (First Chances Fife, SFC AHDP/REACH, ARC, Sutton Trust).

5.15. We are committing to working intensively with College partners to support transitions into our FE/HE Pathway and other supported routes and plan to widen our outreach and engagement with FE partners. This includes investigating the development of FE/SWAP pathways to Medicine and we are investigating other pathways into Medicine for mature learners.

5.16. The main source of funding for our outreach programme comes from the University and its partners, with over £550,000 committed on an annual basis. The staffing commitment with specific responsibilities for Access and Widening Participation within our Admissions Department is 11 FTE.

6. High quality learning, teaching and support

6.1. World class teaching delivered by a research-led community of experts lies at the heart of the St Andrews approach to pedagogy. We continue to recruit the most academically able students from a diverse array of backgrounds.

6.2. In response to the pandemic, we designed a system that maximises the delivery of safe in-person teaching, giving students and staff additional space for social distancing, while providing online-access for remotely engaged learners. Priority for in-person delivery was given to smaller, more interactive teaching formats. Safety is ensured by providing more space, mandatory mask-wearing, hygiene and cleaning materials, visible reminders of socially responsible behaviours, and enhanced ventilation. Our Covid Code was developed in collaboration with the Students Association[36].

6.3. Drawing on the experience of the three pandemic semesters, we have developed an effective plan for offering a blended teaching format, using online delivery for lectures where this has proved popular and efficacious, while delivering the vast bulk of our small-class, interactive teaching in-person. A full suite of online formats is available for remotely engaged students. We

[35] https://www.st-andrews.ac.uk/assets/university/study-at-st-andrews/documents/recognition-of-prior-learning.pdf

[36] https://www.st-andrews.ac.uk/coronavirus/covid-code/

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have also dramatically enhanced our provision of digital learning and study resources (e-books, e-journals, learning software, VR teaching packages).

6.4. We offer dual delivery with parity of experience and a careful assessment of outcomes across the entire institution. Students are supported (e.g., through loaned laptops or WiFi dongles) when there are issues of digital exclusion, and a carefully targeted system of mitigation is in place to ensure that student outcomes are not negatively affected by the pandemic.

6.5. Students who have been financially impacted by the pandemic are able to access discretionary funding. In 2020-21, a total of 922 awards were made to the value of £1,544,306.

6.6. During these unprecedented times, the University acknowledges the potential for increased pressures on our student body. We have implemented a Discounted Time process[37] for our research postgraduates to extend their studies if the pandemic has negatively impacted them. This has provided recovery time whilst enabling students to complete their studies within the funded period.

6.7. Students whose courses require them to undertake placements in the UK or overseas, or fieldwork, have been supported to continue this where safe and possible. A new dedicated travel support service has been established to assist students (and staff) undertake essential travel in the context of the pandemic.

6.8. To ensure our staff have the skills and support to deliver a high-quality hybrid learning and teaching experience for students, we have recently strengthened online teaching and digital resources via our TELStA Hive[38] facility and additional training programmes[39]. Our skilled workforce is committed to continuing professional development and enhancement throughout the pandemic.

6.9. Throughout the pandemic, we continue to ensure there is rigour and quality in our heralded learning and teaching. All monitoring and review processes (including seeking student feedback and periodic in-depth reviews of academic Schools/Departments) continued, ensuring our arrangements for quality assurance and enhancement support the standard expected by our students and our staff.

6.10. We take an evidence-led approach to quality assurance, which is informed and motivated by scrutiny of available data (including NSS, module questionnaires, and student outcome data). We use long-term trend data analysis across a range of metrics to ensure the effects of any changes in School-based or institutional practice are well understood from the student's perspective.

6.11. Every student, regardless of background, is supported to ensure they are enabled to progress and transition successfully in pursuit of their award outcome. Our entrant and returning students are provided with a wealth of resources covering administrative, academic, support and student life topics, as well as reflective activities to prepare them for the commencement of studies.

[37] https://www.st-andrews.ac.uk/policy/academic-policies-student-progression-length-of-study-for-pgrs/discounted-time-guidance.pdf
[38] https://www.st-andrews.ac.uk/ceed/learning-technology/
[39] https://www.st-andrews.ac.uk/ceed/learning-technology/get-involved/

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Tailored Undergraduate and Postgraduate Transitions Toolkit and Orientation Moodle courses are also available.

6.12. We also offer a peer mentoring scheme[40] across our Schools so that our incoming taught postgraduates can interact with our outgoing taught postgraduates. Transitions to work placements and partner institutions are well supported with a comprehensive pre-departure package and ongoing support whilst away from St Andrews.

6.13. We are committed to ensuring students are supported in their mental health and wellbeing. Our Student Services unit is British Psychological Society (BPS)-accredited and wait times for services, including cognitive behavioural therapy, are on average no more than two weeks. We now have wellbeing advisers in every academic School/Unit. Students declaring mental health disability can meet with the disability team to discuss and put in place an academic support plan.

6.14. Students and staff are also supported by our Occupational Health service or the Chaplaincy. A University wide Mental Health taskforce monitors mental health support provision and initiatives for students and staff. Our whole-university Mental Health Strategy[41] confirms our commitment to our University community's mental health and wellbeing. While specific to the context and needs of the University of St Andrews, it also reflects the strategic themes put forward by Universities UK's Stepchange Framework for mental health in higher education[42].

7. Partnership, participation, and student experience

7.1. The University of St Andrews embeds consultation with key stakeholders as a matter of course through its governance and committee structures which specifically and by design include our students. We ensure students are enabled to participate to have their voices heard and valued, and to influence their experience. Via the student sabbatical officers and student representatives in Schools, students are engaged at every level of decision making, from Departmental/School teaching committees up to the University Court at the apex of the institution. For this academic year, there are new postgraduate representation roles in the Students' Association.

7.2. Effective partnership arrangements exist between institutional leadership teams and student bodies. A new partnership agreement, which solidifies the cooperative and collaborative relationship between the Students' Association and the University, has been implemented this year.

7.3. Student input is continuously sought and greatly valued. Students are regularly asked for feedback (e.g., through Module Evaluation Questionnaires) and staff close the feedback loop by responding. All our Academic Schools have a Staff-Student Consultative Committee.

7.4. The University provides extensive support to sabbatical officers and School presidents in advance of their taking up their roles. Our Centre for Educational Enhancement and Development has a comprehensive training programme for student representatives; our Careers Centre provides

[40] https://www.st-andrews.ac.uk/orientation/beyond/academic-mentoring/
[41] https://www.st-andrews.ac.uk/policy/academic-policies-quality-and-standards/mental-health-strategy.pdf
[42] https://www.universitiesuk.ac.uk/policy-and-analysis/stepchange/Pages/framework.aspx

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training to School presidents in employability-related issues and Sabbatical Officers are also offered coaching with Student Services.

7.5. Service development is also informed by student feedback. Our Careers Centre has collaborated with students to embed a School Presidents Advisory Group, which provides feedback to Careers on their services and helps to shape support and partnership activities. Similarly, our Student Services team has a Participation and Engagement Group for service users, and an open forum for representatives of student clubs and societies.

8. Learning with impact

8.1. Our portfolio of programmes and additional activities and associated graduate attributes provide our students with the opportunity to develop a range of transferrable and meta-skills prized by employers.

8.2. We strive to ensure our curricula are fit for purpose and are responsive to changing employer needs. Teaching and curricula are reviewed annually and through periodic reviews of School and Departments.

8.3. We are recognised as one of the top 20 institutions in the UK for graduate prospects, with over 80% of students progressing to a positive graduate destination[43].

8.4. Enterprise and entrepreneurial education are embedded throughout our core curriculum encouraging the development on an entrepreneurial mindset. Our engagement with industry has led to a successful industry-focused and industry-sponsored doctoral research programme in Computer Science.

8.5. In a recent study[44], the University of St Andrews was recognised as one of the top institutions in the UK for producing CEOs, Managing Directors, or founders of their own business.

8.6. Our comprehensive Careers Centre has been awarded the AGCAS quality standard[45]. Our careers and employability support services cover a range of learning styles including desk-based resources on a newly redeveloped website[46] and access to artificial intelligence driven CV checking software. In addition to a comprehensive range of work experience opportunities, students are provided with opportunities to meet alumni and to connect with employers and mentors, which was enhanced in response to the pandemic. This includes our Coffee Connect[47] initiative, which involved nearly 1,400 alumni and students for informal mentoring; our 'Summer Splash' week, which included employer workshops; the 'Raise a Glass' events which connected alumni and new graduates for informal mentoring to celebrate their success; a graduate 'bootcamp' to support graduates with career planning and transition skills; a graduate survey

[43] https://www.thetimes.co.uk/article/good-university-guide-in-full-tp6dzs7wn

[44] https://www.hitachicapital.co.uk/business-finance/invoice-finance/invoice-finance-blog/which-university-graduates-are-most-likely-to-become-a-ceo/

[45] https://www.agcas.org.uk/write/MediaUploads/Resources/Quality/AGCAS_Membership_Quality_Standard_Summary_-_updated_13012020.pdf

[46] https://www.st-andrews.ac.uk/careers/

[47] https://www.st-andrews.ac.uk/development/alumni/saint-connect/coffee-connect/

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with follow-up information about career topics of the graduates' choosing; and an additional suite of appointments taking place outside standard working hours to support graduates who are under-employed or unhappily employed.

8.7. We work closely with AGCAS Scotland[48] as part of the Young Person's Guarantee to support Scottish-domiciled graduates into graduate internships across Scotland.

8.8. Our Careers team has also increased its utilisation and understanding of labour market research to stay up to date with the needs of business and industry, and Scotland's economic recovery. Every careers advisor in our team is a member of the Institute of Student Employers[49].

9. Collaboration

9.1. The University of St Andrews is an active and engaged member of several prominent associations and networks that foster international collaboration and partnership, including the Europeaum[50] and the Talloires Network of Engaged Universities. Our institution is extensively externally engaged, offering leadership, where it matters, across a range of sector groups and initiatives. Our Principal is Vice-Convener of Universities Scotland, leads on the Admissions Policy Group for the sector, and is currently a member of the US Mental Health Task and Finish group.

9.2. Professor Mapstone is also a member of the UUK Board, a UCAS trustee, Vice-Chair of the Board of Trustees of the Carnegie Trust for the Universities of Scotland, and Chair of the Board of the Higher Education Policy Institute.

9.3. St Andrews recently joined the University of the Arctic (UArctic) network[51] and is part of a Scottish network of institutions collaborating on Arctic engagement and research, with support from the Scottish Government.

9.4. At our Eden Campus, we continue to develop a model to bring together expertise, internal and external, into an environment for experimentation, the development of new approaches, and consideration of their impact on public policy. We are creating a network that enables others to work with our expertise and create opportunities for: researchers; investors, industry, and policy makers; teachers and students; Government and funders. This work is benefiting from new grant awards over the next three years of £1.75M.

9.5. Despite some of the constraints associated with our rural location, we collaborate to reduce carbon emissions, to improve local coherence and sustainability of provision, and be a part of place-based approach to economic recovery. The University will be participating in Project Fusion[52], a SPEN trial energy flexibility trading platform, and we are utilising Mobility as a Service

[48] https://www.agcas.org.uk/
[49] https://ise.org.uk/
[50] https://europaeum.org/
[51] https://www.uarctic.org/
[52] https://www.spenergynetworks.co.uk/pages/fusion.aspx

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(MaaS) funding[53] in collaboration with Transport Scotland, Urban Foresight, and Fife Council to provide a new way of developing interconnected sustainable travel options to St Andrews.

9.6. We have several collaborations with other SFC funded institutions, some of which are long-standing. Our innovative ScotGEM graduate entry collaboration with the University of Dundee will see its first cohort of medical students graduate with a joint award from the two institutions in summer 2022. This will be the first time in 50 years that the University of St Andrews will have hosted a graduation ceremony to award a primary medical qualification, the MBChB degree.

10. Research excellence, sustainability, and collaboration

10.1. World-leading research is fundamental to what St Andrews does, as evidenced by our performance in REF 2014[54] and through the ambitions of our University Strategy 2018-2023. We continue to promote areas of world-leading research that provide international leadership and engage with big societal questions.

10.2. Our application of research to create substantial global impact was also evidenced in the Impact element of REF 2014, in which five of our Schools ranked in the UK top five. Our submission to REF 2021 includes 72 Impact Case Studies.

10.3. Ongoing dual support of research is key to maintaining a successful research environment. QR and REG funding for research have steadily decreased over time eroding the ability of the sector to maintain the quality of research infrastructure required to stay at the forefront.

10.4. It is a strategic priority of the University of St Andrews to undertake world-leading research of the highest quality, and the University recognises that this is dependent on a wide range of institutional, groups and individual factors that define the environment in which researchers work. A key aspect of our research culture is support for research integrity, building on a baseline of compliance with the Concordat to Support Research Integrity[55]. The Research Integrity Committee co-ordinates operational activity, with oversight from the Ethics and Research Integrity Assurance Group (including members of Court and the Principal's Office). Drawing on the University Strategy and enabling strategies, our vision is to nurture an institutional research culture[56] that supports and recognises: collegiality, fairness and transparency; equality, diversity and inclusion; collaboration and interdisciplinarity; career development and work-life balance; integrity; open research and public engagement; and research impact and responsible innovation.

10.5. For postgraduate students, we mandate integrity training, offer a range of workshops, and embed content throughout our induction processes embedding continuous improvement activities aimed at culture-building, taking an academic-led approach.

[53] https://www.transport.gov.scot/our-approach/mobility-as-a-service/maas-investment-fund-mobility-as-a-service/#
[54] https://www.st-andrews.ac.uk/research/quality/
[55] https://www.universitiesuk.ac.uk/topics/research-and-innovation/concordat-research-integrity
[56] https://www.st-andrews.ac.uk/research/environment/culture/

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10.6. The University of St Andrews has addressed the social and cultural consequences of the pandemic through the prioritisation of resources to support research and researchers. Our PGR students benefitted from our discounted time process [57]which extends a student's end-date in line with Covid related disruptions. A total of 957 students received at least 3 months of discounted time (4 are SFC funded, 361 internally funded and 255 self-funded) and we committed over £1.2m in funded extensions from SFC Additional Research Funds to students who were already in receipt of funded places and/or stipend. We also provided additional direct project support for researchers to enable research to restart through the Additional Research Funds, including to support infrastructure investments that would otherwise have been delayed or cancelled due to the financial effects of Covid. These included extending and protecting the employment of 62 research jobs and directly creating 36 research jobs. Our governance and processes ensure we are advancing equality of opportunity and diversity of research focus.

10.7. Supporting collaborative and interdisciplinary work is key to achieving our goals. Research at the University of St Andrews takes place within and across our academic Schools, with the University supporting many cross-discipline or cross-institutional research Centres and Institutes[58] where much research collaboration takes place. Our commitment to interdisciplinarity and collaborative research is enshrined in our University Strategy. Through the allocation we received from the SFC additional research funds in response to Covid-19 (2020-21), totalling £8.2M, we continue to support 80 research projects, some directly focused on Covid-19 and others on interdisciplinary research. Some of this funding also supports research infrastructure projects which would otherwise have been cancelled or significantly delayed.

10.8. Our Global Challenges Forum is key to strengthening our international research collaboration. The Forum oversees and supports capacity building and maintenance, and development-related research activity through competitively funded projects intended to make a real difference to the lives of people in ODA countries. The Forum aims to develop strong and enduring partnerships between the University and developing-country researchers to enhance the research and innovation capacity and deliver substantial impact on improved social welfare, economic development, and environmental sustainability.

10.9. In developing our GCRF activities, we are fulfilling a key University objective to promote areas of world-leading research that provide international leadership and engage with big societal questions. We continue to bring experts together through the Global Challenges Environmental Futures Symposium Series, this year focused on Equality Matters, Sustainable Likelihoods, Social Justice, and Evidence-Based Policy.

10.10. We are committed to making our research results as openly available as possible, thereby encouraging international research collaboration. St Andrews is a sector leader for OA, placed 5 in the 2020 Leiden World Ranking for proportion of Open Access publications.

10.11. The success of the joint submissions to REF 2014 by St Andrews with the University of Edinburgh in Chemistry and in Physics and Astronomy is a direct result of the Scottish research pooling initiatives. The Chemistry pooling initiative continues to benefit the training and development of

[57] https://www.st-andrews.ac.uk/policy/academic-policies-student-progression-length-of-study-for-pgrs/discounted-time.pdf
[58] https://www.st-andrews.ac.uk/research/university/centres/

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postgraduate and post-doctoral researchers, and this is evidenced through our joint submission to UoA 8 for REF 2021 with the University of Edinburgh. We continue to investigate new and innovative ways to engage with researchers on a global platform and work closely with other Scottish institutions, such as the Royal Conservatoire for Scotland, focussing on interdisciplinary research, and the James Hutton Institute, for impactful research.

10.12. Within its Strategy the University has recognised the need to ensure the institution's research is robust and resilient. The entrepreneurial pillar of the Strategy will bring about a change enabling and increasing emphasis on interdisciplinary and impactful research. Our two catalyst funding schemes, the St Andrews Interdisciplinary Research Support (STAIRS), and the St Andrews Leadership Initiative for Tailored Support (LIFTS), are supporting five interdisciplinary research projects closely aligned to the University's strategic objectives, and one Principal Investigator.

11. Knowledge exchange and innovation

11.1. We are focusing and prioritising our ambitious knowledge exchange and innovation activity on Scotland's economic and social recovery. The University is working closely with a wide range of Scottish entities and over 30% of actively licensed IP deals are with Scottish companies.

11.2. An additional enterprise facility will be created at Eden Campus, a collaborative project with Fife Council and is supported by the UK and Scottish Governments as their contribution to Tay Cities development.

11.3. The University has created a virtual Industry Club with a focus on low carbon technologies. The club already exceeds 100 members, some of whom will become tenants at Eden Campus.

11.4. A Simulation facility is at the cutting edge of our new operations. It was funded through the Tay Cities Deal as a 'proof of concept' project. It enables clients to undertake cost effective scenario planning/modelling – for example, determining critical energy resilience in NE Fife, effective coastal defence systems, or even measurement of carbon sequestration from tree planting projects. In a similar vein, work has begun to build a dry laboratory for research and testing battery cell technologies, which will be the first of its kind in Scotland.

11.5. These activities use government support and have leveraged private sector funding in excess of £30m. More information on our knowledge exchange activities can be found in the University Innovation Fund submission (see appendices).

12. Engaging Students and other stakeholders in the development of the Outcome Agreement

12.1. Key constituencies and representatives across the relevant University functions have been consulted prior to the finalisation of this Outcome Agreement. Our Outcome Agreement is a report on our achievements, plans, and activities. The University of St Andrews embeds

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consultation with key stakeholders as a matter of course through all its governance and committee structures which, by design, include our students.

<<End>>

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Appendix 1:

University of St Andrews University Innovation Fund (UIF) 2021 – 22

1. Background and Strategy:

1.1. The University set out a five-year strategy encompassing the period 2018-2023. The strategy defined four distinct but equally important themes: World-leading St Andrews, Diverse St Andrews, Global St Andrews, and Entrepreneurial St Andrews. At a high level, the UIF funding, alongside other sources including University funding enables us to drive and accelerate our ambitions for the Entrepreneurial St Andrews theme.

1.2. Entrepreneurial St Andrews aims to drive a culture shift within the University to strengthen our engagement with industry, business, and policy makers, and increase our capacity for innovation and value creation. We recognise that industry is increasingly setting the agenda for major funding priorities and innovation is a key differentiator, and the demand for specific skills is growing. The current scale and pace of technological advancement are already posing fundamental challenges to society. St Andrews will need a step-change to engage fully to support innovation and deliver the education and skills that are needed for inclusive economic growth.

1.3. In accordance with the Entrepreneurial St Andrews theme, the University recently completed a review of innovation and entrepreneurial activity support mechanisms. The review recommended a restructure and additional resourcing of the entrepreneurial strand of the University. In August 2021 we implemented the first phase of the recommendations by creating a new internal professional service unit, Entrepreneurial (St Andrews) and simultaneously increasing investment and prominence of our wholly owned subsidiary St Andrews Applied Research Limited (StAAR). StAAR is focused across the entire innovation pipeline from funding and innovation identification through to enabling and supporting spin-outs and start-ups.

1.4. The vision for StAAR is to create a single 'customer centric' service organisation capable of providing a broad range of functional capabilities to drive research grant volume and quality, and to enable the translation of innovative ideas and breakthrough research into commercial outcomes.

2. Eden Campus

2.1. At our Eden Campus, the Tay Cities Deal Funding of £26.5m has triggered additional investment of almost £10m for Eden Campus as well as direct investment by an anchor tenant The campus includes an award-winning biomass plant and district heating scheme in addition to a 450-person professional services hub.

2.2. The campus recognises the need for physical estate and associated infrastructure that enhances external collaborations and community impact whilst also working towards a low carbon future. The site has allowed the University to accelerate our path to achieve our Net Zero targets and provides a strong base from which to support the green recovery. Our vision is to create a platform for innovative economic activity in North-East Fife with a focus on de-carbonising society. We are increasingly working with business, industry, government, and investors to create a place where green energy, innovation, academia, and entrepreneurship come powerfully together.

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2.3. Eden Campus is developing as an important site in the stimulation of Innovation activity and achieving impact from University research. Innovation funds within the university are asked to consider their potential to work with, or be showcased at, Eden campus. The delivery of some of the first R&D facilities on site, early in 2022, will provide a focus for innovation activity, particularly in the fields of materials chemistry, biochemistry, aquaculture and engineering-related activities.

2.4. SFC re-starting research funds have enabled a detailed piece of work on the specification of a wholly new R&D facility focussed on Carbon Capture and Utilisation (CCU). This feasibility work will bring together the research expertise in Carbon Chemistry with a greater understanding of the potential for a demonstration-scale facility to attract companies working in synthetic hydrocarbons.

2.5. Innovation funds are proving to be an excellent vehicle to broaden the impact of research, in a way which is attuned to the needs of partner companies who are keen to work with the university where the scale of work is closer to commercial requirements.

3. Entrepreneurship Centre:

3.1. The University and StAAR recently launched the Entrepreneurship Centre. The Centre is a diverse and innovative space created to find and nurture the entrepreneurial spirit in students, academics and staff from every academic school, course, and stage of development. The centre will run a wide range of programmes designed to provide the tools, contacts, and confidence to enable participants to explore the full entrepreneurial journey, turn their research and expertise into a societal benefit and grow their ideas into successful and sustainable businesses.

3.2. The physical space provides; an open spacious environment, state of the art individual workspaces, collaborative working pods, a pitch practice arena and a makers space is also in progress.

3.3. Of particular relevance to the UIF are the activities focused on;

- Providing aspiring entrepreneurs with access to financial and intellectual capital,
- Creating strong, scalable, and sustainable businesses that make a positive contribution to society,
- Nurturing a network of like-minded individuals to support each other and enhance opportunities,
- Providing high quality business training and exclusive enterprise programmes,
- Enabling growth from early-stage ventures to medium-sized enterprises,
- Providing a network of successful mentors and advisors.

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4. Innovation, Knowledge Exchange and Commercialisation:

4.1. In February 2021 the University launched a revised IP policy with the broad aims of simplifying IP ownership and increasing revenue share to inventors. It is anticipated that this will encourage increased entrepreneurial activities. We have also completed a review of our IP portfolio and processes to enable a more streamlined pathway to commercialisation.

4.2. The University engages via the pan-Scottish Research and Commercialisation Directors Group (RCDG) to drive forward sector-wide initiatives. We are also providing representation on Converge's Steering Group and judging panel. Additionally, we have regular interaction with PraxisAuril and have representation on their conference committee.

4.3. The University remains committed to a wide spectrum of cross sector collaborative activities and initiatives that are coordinated through the UIF and underpin our delivery of UIF activities under the seven key UIF outcomes. We contribute to the RCDG subgroup focusing on UIF Entrepreneurialism and we are also engaging on connecting our internal training with the Enhancing Researcher Skills for Business Engagement activities.

4.4. Furthermore, mentoring and training programmes are delivered collaboratively with partners across the sector. A valuable by-product of this is the creation of connections between academics and industry. In addition, we are working with sectoral colleagues to better exploit knowledge and intellectual property to stimulate demand, and quality engagement with businesses and the public sector.

4.5. In December 2020 the University voluntarily and proactively signed up to the KE concordat principles. Our current focus is on developing an implementation strategy.

4.6. For FY 21-22 the University has launched an internal Impact and Innovation Fund targeted at enabling academic staff to undertake activities focused on impactful and innovation-based outcomes. An initial budget of £200,000 has been released. This funding will prioritise activities that would not be eligible or covered by follow-on grant funding, UKRI Impact Accelerator Accounts or other similar sources of funding and demonstrates our commitment and belief in innovation. Calls are open to all disciplines as well as interdisciplinary projects.

4.7. We view supporting our staff and students to establish start up or spin out companies as a key aspect of our entrepreneurial activities and encourage and shape applications to, for example, Royal Society of Edinburgh Fellowships and the Converge competitions. This year, the University of St Andrews had four projects as semi-finalists and two finalists. The four projects covered a wide spectrum of research and stages of development.

4.8. The University is also driving culture change via the inclusion of research impact and Knowledge Exchange within promotion criteria.

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Appendix 2:

Case Studies Utilising SFC Research Funding (including REG)

Menstrual cups vs tampons: An interdisciplinary analysis of barriers and changing attitudes to sustainable period products in contemporary Scotland

Prof. Bettina Bildhauer

School of Modern Languages

Disposable period products (tampons and single-use pads) are a major source of marine pollution and were identified in a Scottish Government-commissioned report by Resource Futures in 2019 as one of four areas best placed to help understand opportunities within the plastics value chain to tackle marine litter in Scotland. This project investigated barriers and changing attitudes to disposing of tampons and pads appropriately and to choosing reusable period products such as menstrual cups in contemporary Scotland. It also furthered the work of the St Andrews-based Menstruation Research Network (MRN) after severe Covid-disruption and developed a focus on menstrual cups as a test case for the continuing barriers to, and recent opportunities for, using sustainable products.

Artist: Jen Lewis/ Beauty in Blood, Title: Red Dress 1
Source: https://wellcomecollection.org/works/xqfb2u3y (open access)

The wider significance of this project is that it investigates and promotes the relevance of menstruation for sustainable development from an interdisciplinary perspective. This is an important step in menstrual studies and in sustainability studies. The Global North is at a tipping point with regards to attitudes to and practices surrounding menstruation, with Scotland at the forefront, being the first country in the world that has recently enshrined in law a universal right to access free period products. In academia, Critical Menstruation Studies is establishing itself as a new field, albeit still small and dominated by social and medical sciences. The St Andrews Menstruation Research Network, co-founded by the PI and PDRA, is emerging as an internationally leading centre of expertise in this field, distinctive in its interdisciplinary approaches which include the humanities.

The results of the study show that the continuing stigmatisation of menstruation is a major factor in barring women from using sustainable products, and that sustainability is a key factor in the increasing acceptance of menstrual cups. The project enabled the researchers to determine more specifically how this stigma is mobilised. An unexpected finding was that fear about individual pollution through 'unhygienic' menstrual blood which was previously a concern for many is now less prevalent than the fear about environmental pollution through disposable menstrual products.

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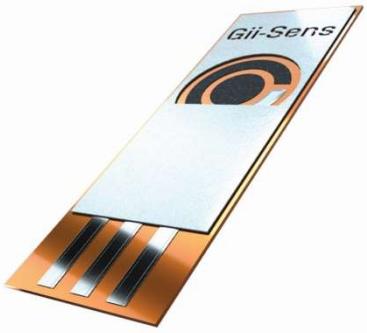
Physical and chemical characterisation of functionalised graphene electrodes for the development of biofuel cells and biosensors

Dr Renald Schaub

School of Chemistry

Devices that rely on biocatalytic activity, such as biosensors and biofuel cells, have garnered significant attention in recent years in the health and wellbeing sector owing to their potential implementation in medical technology. Biosensors already have a diverse range of medical applications, such as the monitoring of blood glucose levels. Biofuel cells can potentially be used for power generation in implantable/wearable microelectronic medical devices, including pacemakers and insulin pumps. For such applications, graphene represents a superior choice as an electrode, owing to it outstanding electrical and mechanical properties. Graphene is also an ideal substrate for supporting the loading of enzymes. Enzymes are essential components of these systems due to their unparalleled catalytic performance, but they also represent the greatest challenge in the construction of these devices as they are required to be stabilised on the electrode surface through a process known as 'immobilisation'.



University of St Andrews

Integrated Graphene

Post-Doctoral Research Assistant Dr Michael-John Treanor and St Andrews in-house equipment to improve the performance of graphene electrodes developed with our industrial partner, prototype pictured.

This project has been based on a solid collaboration between the PI's research group and Integrated Graphene (IG: the industrial partner based in Stirling). This research partnership builds on a 2017 Knowledge Transfer Partnership (KTP) funded by Innovate UK that allowed us to take advantage of our collective skills and facilities to optimise the manufacture of novel electrodes for biofuel cell and supercapacitor devices, delivering in return the world's highest quality pure 3D graphene foam. This directly led to the launch of IG's first product immediately after the end of the KTP project: a bio-sensing electrode (Gii-Sens), with an upgraded version (Gii-Sens+) launched Q2 2021 (during receipt of this funding). This success was recognised by the KTP team when we were awarded an Outstanding grade for the project by Innovate UK in January 2021.

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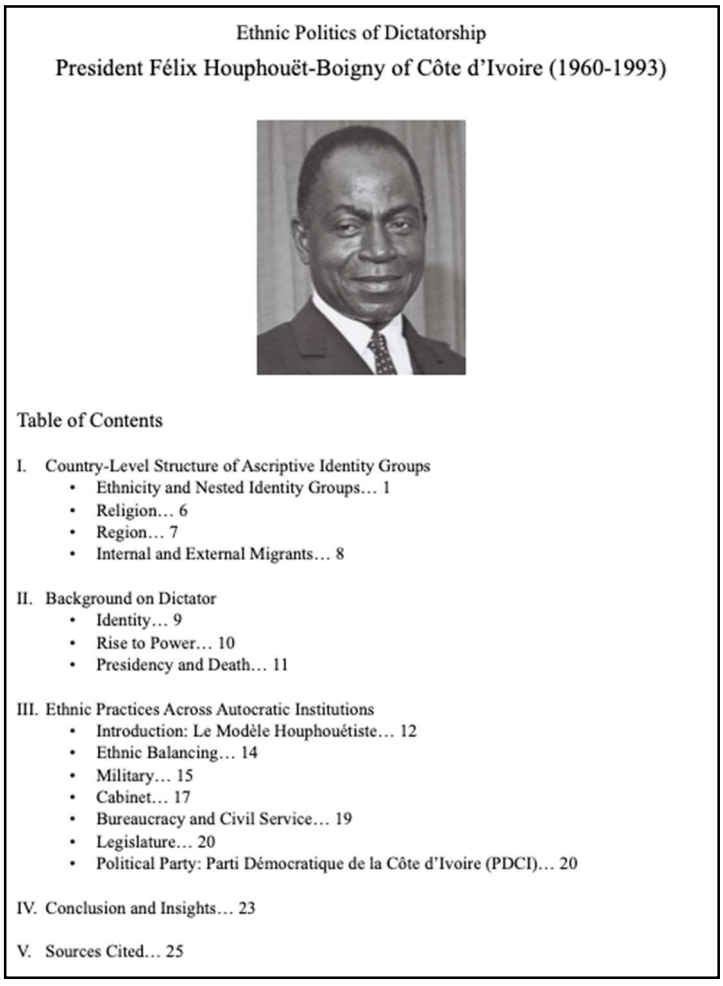
The ethnic politics of dictatorship

Dr Kristen A. Harkness

School of International Relations

Dictators live in the shadow of violence. By its very nature, autocracy excludes the vast majority of its subjects from political power, creating threats of mass protests and armed rebellions from below. Dictators must also worry about elite threats and conspiracies among their erstwhile allies; that regime insiders will seize power in a coup. An emergent literature on the internal dynamics of autocracies argues that dictators guard against these pervasive threats in one of two ways: They can institutionalise formal power-sharing with their inner circles, trading stability for limits on their rule. Or they can personalise power by privileging informal ties of loyalty, such as ethnicity. While insightful, this literature obscures how ethnicity is embedded in formal institutions and presumes that dictators manipulate ethnicity uniformly across state institutions.



Ethnic Politics of Dictatorship

President Félix Houphouët-Boigny of Côte d'Ivoire (1960-1993)

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This pilot aimed to lay the foundations for a multi-year book project that will fundamentally reshape theories of dictatorship by interrogating the complexity of ethnic practices within autocracies, while deepening our understanding of ethnic rebellion. The book project addresses three interrelated research questions: What types of ethnic practices do dictators employ across state institutions? How is ethnicity manipulated to stabilize autocratic rule? How do these ethnic practices shape the emergence of conflict and violence?

The pilot project produced detailed reports on 10 individual dictators across six different African countries---roughly 250 pages of comprehensive background material---mapping their ethnic practices across state institutions. This material has been invaluable to developing preliminary data collection and coding guidelines, and choosing case studies, to submit larger grant bids for the book project such as a Leverhulme prize application.

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A platform to study interactions between SARS-CoV-2 Spike and ACE2 receptor at the single-molecule level

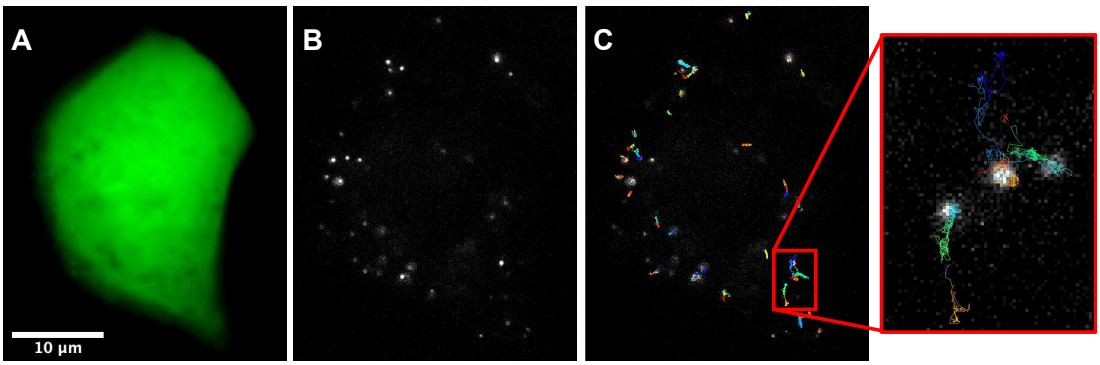
Dr Juan Varela

School of Biology

The infection of SARS-CoV-2 is facilitated by the viral capsid glycoprotein Spike and the receptor ACE2 at the plasma membrane of a variety of cells in the human body, their interaction is the main route by which the virus infects cells in humans. Studies addressing the interplay between these partners have been done using conventional biophysical techniques that average the behaviour of large populations of molecules.The investigators aim to go beyond the current knowledge by looking at individual molecules in living cells, allowing a more realistic image of the variety of interactions to be obtained. The investigators have performed exploratory experiments at the University of St Andrews that show that a static view of ACE2 is not accurate, and highlight the need to understand the virus infection in the correct biological context.

The project aim was to generate a nanoparticle-based platform to study ACE2 mobility at the cell membrane and use this mobility to study the interactions between ACE2 and Spike at the single molecule level in living cells.

The investigators managed to characterise the diffusion of ACE2 receptors in the plasma membrane of living cells at the single-molecule level, which was the main objective of the project. The main outcome of the project is the description of the biophysical behaviour of ACE2 receptor at the membrane of living human lung cells. The investigators succeeded in establishing a nanoparticle-based strategy to track the receptor at the single-molecule level.



Example of a living A549 cell (human lung carcinoma cell line) expressing cytosolic green fluorescent protein (**A**). The same cell expresses the SARS-CoV-2 receptor ACE2 at the plasma membrane which we targeted with functionalised quantum dots (**B**). The individual quantum dots were imaged at 20 frames per second for long periods of time to analyse their behaviour. The observed diffusing quantum dots (most of them labelling ACE2 receptors) were tracked and the trajectories analysed to explore their biophysical behaviour (**C**).

The project is the first collaboration between the groups of Dr Penedo (Physics and Biology) and Dr Varela (Biology). The exciting results allowed the groups to refine a robust experimental plan for the follow-up work, which will be carried out by a PhD student and will start in September 2021.

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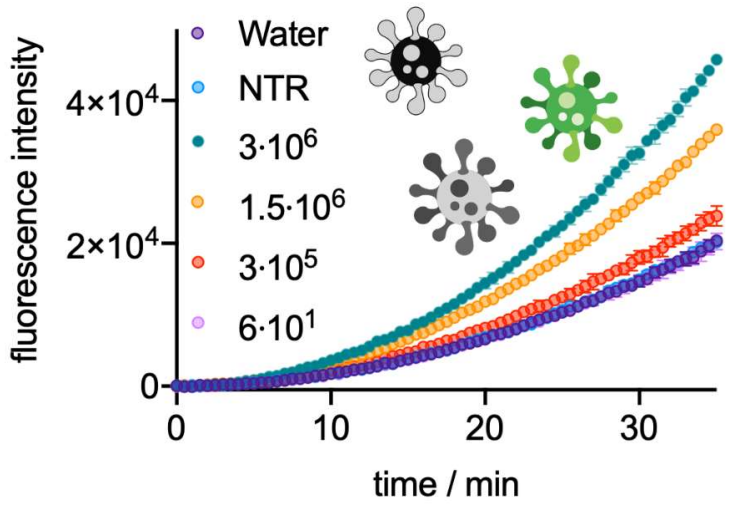
Developing a novel test for rapid, sensitive detection of Covid-19 RNA

Malcolm White / Catherine Adamson

School of Biology

This project sought funds to develop a rapid, accurate and sensitive testing for Covid-19 infection. This funding boosted research that builds on a portfolio of work, pioneered by the White Lab and the Adamson Lab – both at the University of St Andrews, that is developing a new approach to utilise a novel CRISPR technology to detect viral RNA directly, generating a visible signal when the virus is present. The assay avoids the use of scarce reagents and expensive equipment, and can be developed for low resource and point-of-care settings.

Current methods detect viral RNA after converting it to DNA and amplifying the genetic material in a thermal cycler. The process can generate accurate results in a high throughput manner but is dependent on expensive reagents and equipment in high demand worldwide. The new assay we have developed has two main parts, the sensor (Cas10), which can be programmed to detect any viral RNA, such as SARS-CoV-2, at which point it makes a large quantity of an activator molecule. This activator then binds to an enzyme that rapidly cleaves DNA, providing a fluorescent light signal.



The funds supported a PDRA to develop the assay, together with consumable costs. In addition, the project further stimulated inter-disciplinary collaboration by bringing together the complementary expertise of the White and Adamson labs.

The figure shows how the assay allows direct detection of viral RNA, generating a fluorescent light signal.

The funding allowed the PDRA to programme the CRISPR detector to sense RNA from the Covid-19 virus and optimise the test system, define its sensitivity and accuracy, and determine whether it could work directly on virus samples without pre-amplification of the signal. The reprogramming of the sensor has worked, and the team is investigating the sensitivity and benchmarking against established techniques.

The team has filed a patent application to secure the intellectual property and is preparing a research paper. Next steps include securing proof-of-concept and seeking partnership or licensing deals to progress this test towards clinical application.

Prof White said *'This work, which would not have been possible without funding from the SFC, has opened up a new area of research in our lab and delivered very promising preliminary results that we are now following up'.*

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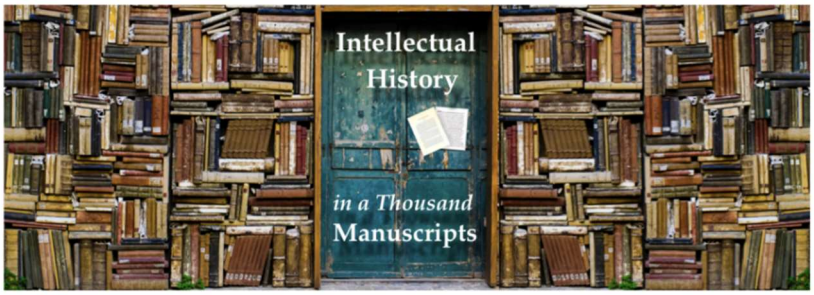
The Archive of European Intellectual Life

Richard Whatmore

School of History

These research funds have been used to re-invigorate activities at the University of St Andrews in preserving the history of intellectual history over the course of the 20th century and beyond as a discipline. The Archive of European Intellectual Life is a material and digital repository of papers from eminent intellectual historians. It is curated by the Institute of Intellectual History and hosted by the University of St Andrews Library. The Archive features unpublished essays, lecture transcripts, teaching material, research notes, correspondence, and other items of important figures, such as Elie and Sylvia Kedourie, James H. Burns, István Hont, Patricia James, Helmut Pappe, John Pocock, Nicholas Philippson and Donald Winch.



The aim of this project is to raise awareness of the wide holdings of the Institute, which include the papers of leading intellectual historians and political theorists, but also to flag up the discovery of new manuscripts in intellectual history across the scholarly world. A large number of editors and researchers are involved in this initiative. Each month new items will be made available online.

Through this work, we appointed a project manager who oversaw every element of collaboration with researchers at the École Polytechnique Fédérale de Lausanne (EPFL). The standard methods of intellectual historical research involve the acquisition of papers and their scrutiny, conjoined with the preservation of manuscripts by skilled librarians as well as their presentation and analysis, including pictorial data, using cutting-edge computer science/digital humanities techniques. Namely, an archivist surveys the entire collection, prepares metadata for the collections database and lays groundwork for future large-scale research projects to access the papers. A digitisation assistant scans and prepares batches of images for the collections database and for analysis by researchers and computer scientists at Lausanne. Some of our findings are already being presented digitally on the Intellectual History in a Thousand Manuscripts site (image snpbr), attracting much press attention.

The project progressed well with Special Collections at St Andrews (taking forward the cataloguing of the papers and the scanning of papers and making them compatible with new EMU cataloguing system) and EPFL establishing a good working relationship. EPFL has made an investment of €100,000 in his project to the end of 2021, including the employment of project facilitator who is working with the Institute of Intellectual History. The main contribution of EPFL to date is to explore how best to present the material we hold digitally and to make what we are doing cutting-edge. As a pilot we have reconstituted a lost database of papers, those of the utilitarian philosopher James Mill and his commonplace books https://intellectualhistory.net/mill

By the end of the project we will have established the Archive of European Intellectual Life online and we will have made progress on a further development of the project, the St Andrews Enlightenment.

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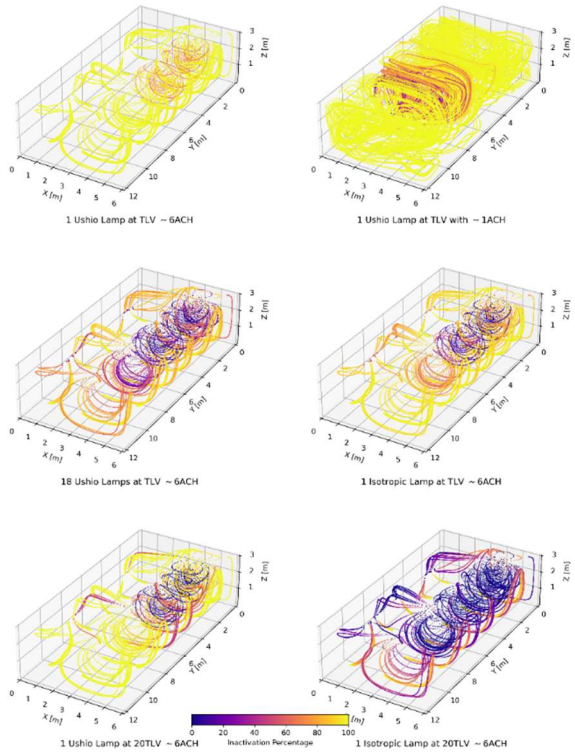
SALTT (St Andrews Light Technology Theory) for Coronavirus Inactivation

Kenny Wood; Catherine Adamson; Terry Smith; Ewan Eadie (NHS Tayside); Andrew Parker; Andrews Longbottom; Andrew Wood

School of Physics and Astronomy

This project investigates the safety and efficacy of the use of a new type of ultraviolet light, Far-UVC to safely kill airborne viruses, such as SARS-CoV-2 which causes Covid-19, as well as other diseases such as influenza.

These funds support ongoing research, carried out jointly with NHS Tayside and the University of Dundee, which has found that Far-UVC could be safely used to disinfect air in public places and have resulted in the group wining two further awards from the UK Government's Department of Health and Social Care (DHSC). Importantly, this new project has enabled the creation of a large interdisciplinary team to expand knowledge on the potential for Far-UVC light, with colleagues at the Universities of Leeds, Heriot-Watt University and Columbia University in New York, along with local companies Fluid Gravity Engineering in St Andrews and Ten Bio in Dundee. Computer simulations run by the University of St Andrews and Fluid Gravity Engineering will also examine airflow, viral spread and Far-UVC inactivation of viruses through numerical modelling (image shows computer simulations of particle trajectories in a classroom colour coded according to how much live virus is present).



The use of ultraviolet-C (UVC) light is well established as a technology for the inactivation of viruses and both conventional UVC and Far-UVC light are known to be effective at inactivating viruses including SARS-CoV-2 (the virus responsible for the Covid-19 pandemic) on surfaces and in air. However, conventional UVC light can cause acute skin reddening and eye damage, limiting its use in occupied spaces. By contrast, when appropriately used, Far-UVC does not appear to produce the same negative effects, and existing studies show it is likely to be safe for use in occupied indoor places. These new clinical trials will allow the research to investigate changes in the skin to both acute high-dose Far-UVC exposure and to repeated lower dose exposures.

Dr Ewan Eadie (NHS Tayside) said: 'Far-UVC light has the potential to revolutionise the fight against airborne transmission of not just SARS-CoV-2 and its mutant variants, but all airborne viruses including seasonal influenza. However, there are a lack of human safety data and an urgent need for more safety information on this deployed technology, which our clinical trial will address'.

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University Outcome Agreement Impact Framework: Supporting Data

	Measure	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
A	Number of Scottish-domiciled Undergraduate Entrants	730	511	549	569	728	698	653	596
B	Total number of Scottish-domiciled HN entrants from Scottish colleges to undergraduate programmes		10	5	11	17	19	19	47
	Number of Scottish-domiciled HN entrants from Scottish colleges to undergraduate programmes with Advanced Standing		3	0	1	1	1	1	2
	Proportion of Scottish-domiciled HN entrants from Scottish colleges to undergraduate programmes with Advanced Standing		3.0%	0.0%	9.1%	5.9%	5.3%	5.3%	4.3%
C	COWA measure:Total number of Scottish-domiciled full-time first degree entrants	706	494	541	558	715	665	653	596
	COWA measure: Number of Scottish-domiciled full-time first degree entrants from the 20% most deprived areas	35	25	30	42	76	73	64	88
	COWA measure: Proportion of Scottish-domiciled full-time first degree entrants from the 20% most deprived areas	5.0%	5.1%	5.5%	7.5%	10.6%	11.0%	10.2%	14.8%
D	Number of Scottish-domiciled undergraduate entrants with care experience	3	4	2	4	11	7	11	15
	Proportion of Scottish-domiciled undergraduate entrants with care experience	0.4%	0.8%	0.4%	0.7%	1.5%	1.0%	1.7%	2.5%
E	Number of Scottish-domiciled full-time first year entrants in previous year	520	703	494	541	557	711	664	647
	Number of Scottish-domiciled full-time first year entrants returning to study in year 2	506	679	475	523	538	684	653	620
	Proportion of Scottish-domiciled full-time first year entrants returning to study in year 2	97.3%	96.6%	96.2%	96.7%	96.6%	96.2%	98.3%	95.8%
F	The difference (+/-) from the individual institution benchmark figure for students satisfied with the overall quality of their course of study in the National Student Survey	1	6	6	8	9.5	7.8	15.37	
G1	The number of Scottish-domiciled undergraduate qualifiers responding to the Graduate Outcomes survey				351	248			
	The proportion of Scottish-domiciled undergraduate qualifiers responding to the Graduate Outcomes survey in a positive destination				336	234			
	The number of Scottish-domiciled undergraduate qualifiers responding to the Graduate Outcomes survey in a positive destination				95.7%	94.4%			
G2	The number of Scottish-domiciled full-time first degree qualifiers responding to the Graduate Outcomes survey in employment				241	157			
	The number of Scottish-domiciled full-time first degree qualifiers responding to the Graduate Outcomes survey in employment in professional employment				160	109			
	The proportion of Scottish-domiciled full-time first degree qualifiers responding to the Graduate Outcomes survey in employment in professional employment				66.4%	69.4%			
H	Number of Scottish-domiciled Undergraduate Qualifiers	445	427	471	643	493	486		

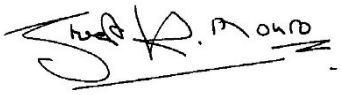
Please note that 2018-19 and 2019-20 figures for measure G2, 2019-20 figures for measures F and H and all 2020-21 figures are impacted by the COVID-19 pandemic and may not be directly comparable to other years

Scottish Funding Council
Comhairle Maoineachaidh na h-Alba

Outcome Agreement between the University of St Andrews and the Scottish Funding Council for AY 2021-22

On behalf of the University of St Andrews:

Signed:	
Print name:	Professor Dame Sally Mapstone FRSE
Position:	Principal and Vice-Chancellor
Date:	19 July 2022

Signed:	
Print name:	Prof Stuart K Monro OBE, FRSE
Position:	Chair of Court
Date:	23rd July 2022

On behalf of the Scottish Funding Council:

Signed:	
Print name:	Karen Watt
Position:	Chief Executive
Date:	28 July 2022

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