

PETER WATSON INTERNATIONAL SCHOLARSHIP



A Scholarship Award for Science-Related
Advanced Level Students

Science • Education • Research • Business

PWIS PROSPECTUS—FIND OUT MORE

An
opportunity
to fuel
student's
ambition



THE PWIS

The Peter Watson International Scholarship is a national award open to all students undertaking a science related Extended Project Qualification (EPQ).



An EPQ is a qualification taken by some students in the UK, it is equivalent to an AS level. An EPQ contains 100% coursework and tend to taken up the second year at sixth form in upper sixth. Universities look positively at an EPQ and value its rigorous academic content and the vast amount of time taken to complete this. The EPQ project helps students to gain a lot of new information and explore their interests in depth. It also indicates a heavy interest in a particular subject which is useful for those applying to university.

The PWIS was originated in 2017. The Scholarship is supported by the University of Cambridge, the Oxford Cambridge RSA (OCR) Examination Board, National Eye Institute (NEI) and National Institutes of Health (NIH). Past funding has been kindly provided by UK Pharmaceutical companies such as AstraZeneca and charities such as the Cambridge Eye Trust.

Our Vision

- To help grow a passion for science and research in young people
- To contribute to developing the next generation of talent in the UK
- To provide Finalists with an invaluable learning experience
- Perhaps even to inspire a future Stephen Hawking

THE OPPORTUNITY FOR STUDENTS

The PWIS is a fantastic opportunity for students considering science, technology, medicine or engineering as a career to experience what it's like at the cutting edge of research and technology and gain an international perspective.

The Scholarship Evaluation Process

- 16-18 year old UK Students submit an abstract to the PWIS review panel
- 10 successful Finalists are invited to attend a 1-week residential series of learning and practical research project application events within the research and clinical Departments of Cambridge University
- The PWIS Finals are held at the end of the week. Each finalist presents in front of a panel of esteemed of judges, University representatives and each other

"The Prize giving Day was a fantastic experience that allowed me to practise presenting work to a group of experts, an invaluable skill that can be used in any career one wishes to pursue. Listening to the other projects and the experts was inspiring for any scientifically minded student, and I would highly recommend the opportunity to anyone." 2018 winner

Past presentation topics have included:

Real-Time Inertial and GPS Assisted Tracking of Objects in 6-Dimensional Space, What do people with absolute pitch have in common: A medium scale direct-test study, Will CRISPR Cas-9 technology ever be used in humans on a commercial scale?, The Overqualified Surgeon, Is chemotherapy an outdated treatment for cancer?



Peter Watson International Scholarship www.pwis.org.uk

Contact: Tasneem Khatib (Co-Founder) tk475@cam.ac.uk or Louise Richards (Administration) louise@healthology.eu

THE SCHOLARSHIP

What does it offer the Finalists?

A one-week all-expenses paid trip to Cambridge, UK.

Finalists will have the opportunity to visit Cambridge medical and scientific institutions and other science related institutions and events.

They will receive mentorship and supervision from scientists in Cambridge and take part in a week-long specially designed programme of events including:

- Lab trips
- Research bench work as part of a clinical team
- Group research projects
- Social activities such as punting, Hall Dinner, sight-seeing and much more!

At the end of the week finalists will present their EPQ project to a panel of judges followed by the Winner of the PWIS 2021 Scholarship being announced.

General Event timings: See website for timings

Submission open March/April

Submission closed April

Finalists notified by 1 June

Finalist Week late July

Unbiased review of abstracts and presentations

The Organisers of PWIS are a group of physicians who have an interest in scientific education, research and patient care. The PWIS is not-for-profit, the judges and organisers provide their services free of charge.

PWIS Organisers do not work on behalf of any commercial companies providing grants toward funding the scholarship. The PWIS is kindly actively promoted and supported by the OCR Educational Board. The scholarship is open to all UK students who undertake an EPQ. Any application will be judged on its scientific merits

WHY PARTICIPATE?

There is a rarity of programmes or scholarships available to senior students to help them stand out from their peers and promote their accomplishments. PWIS offers the chance to showcase a student's research talents and also home skills important to future success.

For all taking part, PWIS is definitely an opportunity of a lifetime.

Winning our scholarship, a guaranteed experience of a lifetime.

If you are a Student, Science Teacher, EPQ Coordinator or parent who would like to know more about PWIS please contact us for further information or visit www.pwis.org.uk.

"The EPQ is a course designed to allow students to develop their interests in a yearlong research based project. Many of the resulting project are awe inspiring and are a result of huge amounts of creative thought and effort by the students. By entering these projects for PWIS there is an opportunity for this work to be externally recognised and rewarded in a way that is not possible with the exam board process." EPQ Coordinator of a 2019 winner

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Peter Watson International Scholarship report 1

Jack Peck, Cambridge - 2019 Winner

When I first started my EPQ, I never imagined that it would lead me to visiting Washington DC. But after an application and a presentation in Cambridge, I won this great opportunity.

I particularly enjoyed meeting several principal investigators, and discussing their work with them. These all were fascinating, and I feel I gained an insight into how research works that I would otherwise not have gained. In many ways, these meetings were the highlight of the trip. We also met several NIH-OxCam scholars over lunch, and I really enjoyed talking with them about their experiences of study and research at the earlier stages of their lives, as well as their current work.

Meeting postdocs from the Hattar Lab was fascinating, talking with them about their research and how the brain is affected by light was very interesting, and showed me how the brain is more differentiated than I thought. I also enjoyed seeing the equipment used to help study the response of mice brains to different light/darkness patterns. I also enjoyed meeting Abhishek Sengupta, who showed us his research into the response of retina cells to light patterns being projected onto them, and the surprisingly complex equipment used to do this and stabilise the entire system. Shadowing Mary Mattapallil for a morning was also very interesting; she showed us some of the work on immunology she does, and seeing an example of how they had engineered a mouse to have a light sensitive colour changing gene from maple trees was great.

Seeing how research and development works in industry, by visiting an AstraZeneca site, was great. I enjoyed seeing how different models were used to help discover and test the efficacy of different compounds and other agents, and the different stages involved in both drug discovery and scaling of production. We also talked with some of the people there about their work, and the differences of working in industry and public research. I found this very interesting, and it gave me an insight into how research works in the pharmaceutical industry.

We also visited the NIH library, which is almost a misleading name - it offers so much more than I expected. In addition to usual library features, it also serves as a hub for other centralised equipment and information. We were shown a virtual reality system, and how it has been used to help researchers 'see' and edit different molecules using specialised software, as well as a 3D printing demonstration. It was very interesting to hear about the different ways 3D printing has been used, from models of different biological structures to replacement or new functional parts. The NEI had also

developed a virtual reality app that allowed users to see what having AMD or cataracts might look like (NEI - What I See).

A visit to the Advanced Imaging and Microscopy Resource was very interesting, and a highlight of the trip for me. It was fascinating to see the non-commercial optical imaging systems, and to learn a bit about how they worked. The resolutions they could work at, for example allowing imaging individual neurones in a mouse brain in 3D, was incredible.

I also presented my EPQ project again, this time to researchers from the NIH. I think it went well, and I got some very interesting questions and ideas for potential biomedical applications for the technology. I also enjoyed visiting and talking to students at the NIH poster day, which was where students who had been at the NIH over the summer presented their work.

A visit to NCATS (the National Center for Advancing Translational Sciences) was great, and it was very interesting to see how they were using new technology to help automate and scale many different processes. The scale that assays could be done at, and the robotics used to do so, was very impressive.

Our afternoons and evenings were often spent in central DC, visiting the monuments and museums. We visited most of the amazing monuments, although we only had time to visit a few of the museums. I think the highlight for me was the National Air and Space Museum, and seeing the original 1903 Wright Flyer was great, as well as the spaceflight artefacts and other exhibits. The Natural History museum was also brilliant.

Overall, the trip was brilliant, and gave me an insight into how research works in a way I would otherwise not have the opportunity to do so for many years. It was also inspiring to see everyone's enthusiasm for their work, and seeing what a future career in research might be like. I would like to thank the Cambridge Eye Trust, AstraZeneca, Biomedical Research Alliance, the National Eye Institute, Craig Pearson, Tasneem Khatib, Christie Campla, and everyone else who helped make this opportunity possible.



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Peter Watson International Scholarship report 2

Pau Sole Vilaro, Cambridge -2019 Winner

What a trip. That's all I could think of while watching a movie on the plane flying from Dulles International Airport back to the U.K. And for good reason, too.

The trip brought many firsts for me: my first time going to the States, first time being in a research centre and in an industrial drug-development centre, first time visiting and walking around Washington DC, or even first time to properly practice my American accent! It was an incredible experience, and I will quickly summarise it now.

When we first arrived, we met with Craig Pearson, an amazing and very open person who quickly set us at ease in our new environment. After getting to our hotel, we spent some time exploring the area around Bethesda to familiarise ourselves with the geography of the place. Then it was finally time to prepare for what would come on the following day.

We spent our week at the National Eye Institute in wonder. We visited many labs, met with many researchers, got lost once or twice and most importantly we learned about lots of interesting, pioneering scientific research. Not only that, but we also got to learn about doing research as a job and what it takes and involves, which was very interesting especially for me since I have been considering research as a potential pathway to follow in my future. Meeting with the researchers and talking to them about their work was an invaluable insight that we got from there that a lot of people don't have access to on a daily basis. It was especially interesting to talk to post-doc students, as they were the ones that were closer to us in age and they could relate to us more with what we were going through currently in our studies and advise us based on their own experiences. My favourite bit from our numerous trips to the NIH was visiting the research groups in the Neuroscience department, because it was a field that I had little knowledge on previously and I found it very interesting.

We also went on visits to an AstraZeneca site and to the NCATS, which was once again an amazing experience since visiting these places is not something one can do everyday. We were able to see how science can be applied and used industrially in a whole complex process, as well as meeting and talking to people that work there, which was also very interesting as they could explain to us what it is like to work in industry and how they got there. We also saw some really cool robots at work!

Our afternoons were spent on long walks around the city centre of Washington DC, a truly amazing city. Enduring the hot sun we managed to visit many monuments such

as the Obelisk, and also the White House, the Capitol, Arlington Cemetery or even museums such as the Air and Space Museum and the Natural Science Museum. We even managed to go to a live Jazz show outdoors on one afternoon! It was great fun, and the Museums were especially awe-inspiring.



Meeting with the researchers and talking to them about their work was an invaluable insight that we got from there that a lot of people don't have access to on a daily basis.

All in all, the trip was simply fantastic. It was very instructive but also entertaining and very pleasant, it involved meeting lots of new people and seeing many new things and places, eating good food, and best of all, getting a better insight into what my

future career might hopefully look like. And this is truly invaluable. Thus, I would really like to thank the people from the Cambridge Eye Trust, AstraZeneca, Biomedical Research Alliance and the National Eye Institute for making this experience possible. One that I will surely not forget.

"...the Prize giving Day was, for me, an excellent opportunity to meet like-minded individuals from across the country, develop my presentation skills and learn about the hard work that people have been putting into their EPQs. There was a kind and professional atmosphere that accompanied the day and this made the event enjoyable and pleasurable. It was evident that the organisers had put a lot of time and effort into it and it was a delight to be invited to attend." 2019 Finalist



2019 PWIS Finalists at Queen's College, Cambridge

2018 Winner Ben Schwabe's report, what happened next?

PWIS Scholar to study Natural Sciences at University of Cambridge

"...I think participating in the PWIS enthused me further"

The Peter Watson International Scholarship was a brilliant experience, I'm very glad to have been a part of this!

I entered the PWIS as I was really enthusiastic about my Extended Project and loved the idea of telling people about and visiting the National Institutes of Health in Washington DC sounded amazing. I love learning about scientific research, and to have the opportunity to visit the hub of most biomedical research in the US was incredible!

The experience of visiting NIH with the PWIS was a real opportunity to learn about how scientific research works, as well as some specific really cool research going on at NIH. It was also a great opportunity to visit the landmarks of Washington DC, such as the Capitol!

I think participating in the PWIS enthused me further about scientific research, and I would love to pursue a career in this in the future. I'm really interested in pursuing science with a focus on application to some of the big problems we are facing globally, such as climate change, sustainable energy and pollution. It was amazing to hear a lot of this kind of mentality from researchers at NIH trying to solve some big problems in health research!

The PWIS would be a great thing to put in a personal statement and think the PWIS really helped me when applying for research experience in my planned gap year between school and university. I was really fortunate to find a wide range of research experience, from research on *Threobroma cacao* at the University of Reading, structural biology at the University of Leicester to fluorine chemistry at FU Berlin and tamarin behaviour at Durrell Zoo, Jersey.

I have now started studying Natural Sciences at the University of Cambridge. The PWIS has been really informative about potential future careers, increased my confidence in myself and will hopefully really help when applying for further competitive research placements in the future!

*PWIS would be a great thing to
put in a personal statement ...*



**Find out more
about us and the
scholarship:
www.pwis.org.uk**