



Royal Holloway Science Festival

Discover Science Day

Saturday 10 March 2018
10am-4pm

A day of science exploration and discovery at
Royal Holloway, University of London

royalholloway.ac.uk/sciencefestival



ROYAL
HOLLOWAY
UNIVERSITY
OF LONDON

Principal's welcome



Welcome to Royal Holloway Science Festival. We have run our hugely popular annual Science Open Day for over 20 years, celebrating science and attracting large audiences each year.

We have a thriving science community here at Royal Holloway, with world-class pioneering research, so this is a great opportunity for everyone to come along and discover some of the exciting things that we are up to.

In an evolving world science is at the heart of our future, and it's important that we continue to engage the next generation in these subjects and make it fun. Through the range of activities at Royal Holloway Science Festival, we can demonstrate the wide-ranging impact of science and explore the latest technological advances together.

Professor Paul Layzell

Science at Royal Holloway

Royal Holloway is one of the UK's leading universities. We have a distinguished history of internationally excellent research in areas from particle physics and dark matter in space, to cyber security, the decline of bees and the communities that live in the Amazon rainforest.

Royal Holloway Science Festival invites you to be inspired by the wonder of science and experience some of our world-changing research first hand.

Royal Holloway co-ordinates a broad range of outreach activities for local schools, and sixth form and FE colleges as well as the wider public, presenting a varied programme of talks, demonstrations, visits, and hands-on workshops. We also provide a point of contact and resource for anyone working in education to inspire the teaching of science to all ages.

We hope you enjoy today's event!

For more details visit our website:
royalholloway.ac.uk/discoverscience

Share your day #RHSF2018

 Follow us on Twitter @RHULScience

Coming soon

British Science Week 2018



Quantum engineering: leading the way to a new technological era

Professor Phil Meeson, Physics Department
Quantum physics is a shining beacon of human achievement yet it remains hugely enigmatic.

**Tuesday 13 March, 6.30pm,
Boilerhouse Auditorium**












Contact:
physics.outreach@royalholloway.ac.uk

Festival of History

Sunday 3 June, 11am-5pm

A family-friendly programme of talks, performances, music, re-enactments and children's activities bringing to life women's struggle for the vote and the end of the First World War.

Today's programme

Discover science at today's special talks and activities			Location
	Visible voices from the present and the past * Professor David Howard, Electronic Engineering	10.30 - 11am	M
	Royal Institution: Explosive Food show	11 - 11.45am	W
	Mars Fieldtrip in 3D, Professor David Waltham, Earth Sciences	11.30 - 12noon	Q
	Big Bang Experience Dr Stephen Gibson, Physics	12 - 1pm	M
	Ugly Animal Roadshow Simon Watt	12.15 - 12.45pm	W
	Bloodhound Supersonic Car Mike Ford	1 - 1.30pm	W
	Mars Fieldtrip in 3D Professor David Waltham, Earth Sciences	1.30 - 2pm	Q
	Ugly Animal Roadshow Simon Watt	2 - 2.30pm	W
	Royal Institution: Feel the Power show	3.15 - 4pm	W
	Planetarium shows*	10.30am, 11.30am, 1pm, 2pm, 3pm	SU
	Wizard Lab * at Biological Sciences	10.30am, 11.30am, 12.30, 2pm, 3pm	B

These events require free tickets, available on a first come first served basis, from the Windsor Building information point. Tickets for events marked with * are available at the door of the event location.

Morning event tickets will be released at 9.45am on the day and afternoon (events from 2pm) tickets will be released at 12.45pm.

Science Festival Passport

A treasure trail for younger visitors

Hunt for a letter at each main venue to complete your science passport then find the hidden word.

Bring your completed passport back to the Windsor Building information desk to collect a prize.



Women in science

Meet some of our science heroines across campus. Many remarkable women have worked or studied at our College since its opening in 1886. Can you find them?

Pick up your passport leaflet from today's information point. Good Luck!

General information



Windsor Building

W Windsor Building

Our main information point today is located at the Windsor Building foyer for:

- Tickets and passport prizes
- Campus guides
- First Aid by SafeSavvy
- Lost property
- Lost children meeting point



Toilets are located in each building.



Interested in studying here?

Visit our stand at the Windsor Building foyer and pick up a Royal Holloway prospectus and find out more.

We would like to thank all our Science Festival partners for their generous support



Post-Quantum



Refreshments

A wide range of food and drink will be available throughout the day



X Festival food fair by the Students' Union Building

A tasty selection of hot and cold food stalls including mac and cheese bar, chicken shack, cheesecake factory and an ice cream van

C Café on the Square **Open all day** Starbucks, sandwiches and cakes

B Boilerhouse Café **Open all day** Sandwiches, cakes, hot and cold drinks

H Hub **Open 11.30am – 2.30pm** Hot and cold refreshments

S Union shop Snacks, drinks and fruit etc **Open all day**



Picnic areas by the Students' Union Building and at Founder's square. (Founder's Dining Hall seating is available as a wet weather option)

See map for locations on page 10

Please note that professional filming and photography will be taking place throughout the day on Saturday 10 March. Footage and images will be used as part of Royal Holloway promotional materials including our website and social media channels. For children under 16, we endeavour to seek permission from parents or guardians wherever possible. Programme correct at time of publication 02/18.

Highlights

Some of today's activities have limited spaces and require tickets for entry. Performances last 30-45 minutes and are suitable for all ages unless stated.

Royal Institution Lectures The Royal Institution Science Lives Here

Explosive Food

See food in a new light in this show with exciting chemistry and physics demonstrations.

Feel the Power

An electrifying show with live demonstrations and audience interaction.

W Windsor Building Auditorium
Two performances, 11am and 3.15pm



Bloodhound Supersonic Car

Discover how a global engineering adventure aims to break the world speed record and inspire the next generation.

W Windsor Building Auditorium
1.30pm

Bloodhound rocket workshops at 2pm and 3pm

W Windsor Building 004

All day activities – no tickets required

Mobile zoo
by Wild Science



Your chance to meet minibeasts and creepy crawlies of the Rainforest

Hands on workshops at 10.15, 11.15, 12.15, 2.15, 3.15pm

W Windsor Building 005

The Ugly Animal Roadshow

Biologist and presenter Simon Watt celebrates and explores the animal kingdom's most monstrous!

W Windsor Building Auditorium
Two performances, 12.15 and 2pm



Planetarium

Discover the stars with Dr Mark Gallaway
Five performances 10.30am, 11.30am, 1pm, 2pm, 3pm



SU Students' Union Hall, (tickets at the door)

Wizard Lab

10.30am, 11.30am, 12.30pm, 2pm, 3pm

B (ages 7+ with an adult) Tickets from Bourne foyer



How Steam Railways work

Live steam engines presented by the Gauge 1 Model Railway Association, Surrey and Royal Holloway's Computer Scientists.



BH Boilerhouse Theatre

Faculty of Science



Biological Sciences

- Pollinators in peril
- The wonderful world of seeds
- Make room for the mushrooms
- Fighting fish and contagion
- Become a DNA scientist for the day
- **Special guests:**
Institute of Cancer Research, Institute of Biomedical Science and the Field Studies Council.

B Bourne Building

Ticketed activities

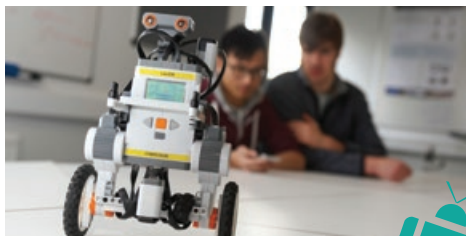
- **Wizard Lab** - Hands on experiments and up close demonstrations to bring chemistry alive!

Activities in small groups
(7+ with accompanying adults)

Bourne Lab 10.30am, 11.30am, 12.30, 2pm and 3pm

Tickets available from Bourne foyer

B Bourne Building



Computer Science

All day drop in activities demonstrated by students from our Computing Society

- Intelligent devices
- Magic Box
- The responsive world

W Windsor Building 102-103-104

- **Balancing robots - how do they work? (ages 8 to 12)**

A hands-on activity where you can control a balancing robot via a mobile phone.

Mc McCrea Building 125

10am-12noon, 1-3pm

- **Lego lines (ages 10 to 14)** -Robots can be used for so many incredible tasks - from search and rescue to exploring distant environments out in space - but how do they know what to do? Join Dave Cohen, and programme a Lego Mindstorm robot, giving it the ability to follow a path and respond to sounds.

Mc McCrea Building 103

10am-12noon, 1-3pm



Wild Science®

Don't miss Wild Science mobile zoo located at the Windsor Building (map **W**)



Steam Trains –Learn about mechanical computing and visit the Charles Babbage exhibition at the Boilerhouse (map **BH**)



Earth Sciences

- Discover your inner cow
- Dr Rebecca Fisher demonstrates how we have been measuring the methane levels in Egham's air for 30 years and the important role this plays in tackling global warming.
- Younger visitors can also learn about the role of farm animals in methane emissions by making a cow mask.
- Earth's timeline - Displays along a corridor will take you on a journey billions of years into our planet's past.

Q Queen's Building

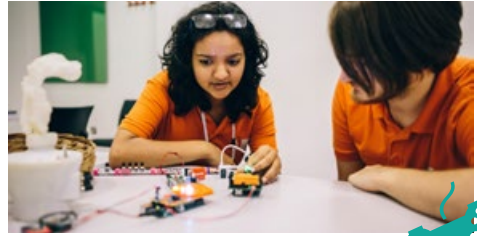
Ticketed activities

Mars in 3D

Explore a journey into Mars in 3D with Professor David Waltham.

Discover geology and history of Mars using the latest 3D images taken from orbiting spacecraft and from rovers on the surface.

Q Queen's Building Lecture Theatre,
11.30am and 1.30pm



Electronic Engineering



- Virtual reality demo - immerse yourself completely in a virtual world
- BBC micro:bit demos - control lights through motion alone
- Leap Motion interactive demo - use your bare hands to interact with a virtual world
- 3D printer demos - see how to print in three dimensions
- Circuit board kits for children - build your own circuits with these fun kits
- Clip magnetic circuits - make circuits with magnets to make sound
- Renewable energy - use light from the sun to power a car

M Moore Building

Special guests:

Bloodhound SSC, workshops to build and race air powered rockets using K'nex at 2pm and 3pm

W Windsor 004

Ticketed activities

Visible voices from the present and the past

Professor David M Howard, on creating the sounds of voices with 3-D printing

M Moore Building Lecture Theatre, 10.30am



Geography

- Discover the Ice ages – see bones and stone tools from past ice ages and Interglacial times
- Explore the story from an ongoing excavation of Britain's past environment
- Make your own cave art
- Making and building an Aerocene explorer

Q Queen's Building

Special guest:

Royal Geographical Society (RGS-IBG):
Hidden histories of global exploration exhibition

W Windsor Building



Mathematics

- Curve stitching – box making and balloon modelling
- Board games and mathematical puzzles
- Harmonograph -make fantastic drawings using the power of harmonic motion.
- Interactive game using bubbles to create mathematical shapes.
- Galton board – be inspired by beautiful patterns made by random processes.

Special guest:

Cryptography exhibition by Jeremy McCarthy.
Be wowed by the Enigma code breakers from Bletchley Park

W Windsor Building 102-103-104

Look out for...

D Davison Building

Named after the suffragette and Royal Holloway alumna Emily Wilding Davison, our new library has drop-in activities from botany and book-making to crystallography and code breaking.

- **Suffrage!** Education, activism and votes for women: visit our exhibition from the College archives.



- **Helium balloon** Rutherford experiment by Physics at Davison event space.

Don't miss

- **Chelsea Physic Garden** – discovery in the world of medicine, with microscopes and making herb bags.
- **Royal Astronomical Society** – promoting astronomy and solar-system science.

W Windsor Building Foyer



Physics

• Imagine, invent and inspire through Physics

Come and have a go with our demos, play music for a Bunsen burner, make smoke rings, and discuss Physics with us.

• Cryogenic demos

Discover the amazing physical phenomena taking place in ultra-low temperatures. Liquid nitrogen clouds, fencing with frozen daisies, levitating trains and superconductivity are just a few of the demos waiting for you at T125 room.

Special guest:

Exhibits from the National Physical Laboratory (NPL).

T Tolansky Building

Ticketed activities

Big Bang Experience

Discover the wonders of the Hadron Collider and what happens when particles collide. Presented by Dr Stephen Gibson

M Moore Building Lecture Theatre

12noon (1 hour talk)

Planetarium

Take a walk with Dr Mark Gallaway through the stars. Gaze at the constellations, and ask everything you ever wanted to know about space! Shows at 10.30am, 11.30am, 1pm, 2pm, 3pm

SU Students' Union Hall



Psychology

• Inside the voice: Take a look with our live karaoke demo at the MRI scanner!

• Explore art and space: We demonstrate the latest eye tracking glasses.

• Is forgetting criminal? Put your memory to the test!

Other activities:

• Never trust your eyes!

• Social media: the self online

• Happy and healthy mind

• Gravity and brain

• Keeping time with your fingers

• Memory Challenge: Can you beat our memory test?

• Is reading a virus?

• Hearts, bodies and minds - illusions and perceptions

• Can you learn a new alphabet?

W Windsor Building 002-003 and 105

Live research: help solve a crime!

Can you help to identify the suspect?

BH Visit the Boilerhouse and find out

Key

Locations

- Windsor Building
- Davison Building
- McCrea Building
- Tolansky Laboratory
- Students' Union
- Queen's Building
- Bourne Building/Laboratories
- Founder's Building Dining Hall
- Boilerhouse
- Moore Building



Refreshments

- Café on the Square
- Union shop
- The Hub
- Catering outlets

Open Days

Our Open Days are a great way to get a feel for life at Royal Holloway. Look around the campus, meet our students and teaching staff, and find out more about studying and living here.

Open day dates for 2018

- Friday 15 June
- Saturday 16 June
- Saturday 29 September
- Saturday 13 October

Find out more and register to attend at

royalholloway.ac.uk/opendays

opendays@royalholloway.ac.uk



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