Advertisement

Volume 643 Issue 8082, 25 September 2025

The future of universities

Universities have been the cornerstone of higher education for centuries, but are they fit for purpose? Can they survive the challenges of the twenty-first century? From the rise of innovation such as artificial intelligence that increased pressure on these institutions, the never-before-posing fundamental questions about what education is for. Four in should be universities be doing more to help? Can they? Nature's Editorial Board and colleagues challenge faculty higher education — drawing on examples from across the world to see how the sector can adapt to survive.

Cover image: Laura Carrera

Subscribe

Table of Contents

This Week
News & Views
Books & Art
Opinion
Work
Research
Amendments & Corrections

This Week

Editorial

Universities are — and must continue to be — a force for good

nature briefing

Sign up for the Nature Briefing newsletter — what's important in science, free to your inbox daily.

Email address

Sign up

Agree to the terms of use of Nature and how we process your personal data in accordance with the Nature and Springer Nature Limited Privacy Policy.

Advertisement

World View

World View 24 Sept 2025

Universities under fire must harness more of the financial value they create

Nature's list of academic institutions now that work that they generate wealth for society. Tapping more work of their vast body their innovation going.

Yanliang Huang

World View 23 Sept 2025

How can universities train the skilled workers of tomorrow?

The high cost of running educational laboratories is fostering changing practices. An innovative path forwards must be charted.

Roseanne Warren

Research Highlights

Research Highlight 24 Sept 2025

Soft robot stores food down the human airway

Flexible and gentle actuators navigate the tortuous pathway to the human medical personnel can even those with extensive training.

Research Highlight 24 Sept 2025

Rare comet attributed to telescope's view of the cosmos

The ATLAS survey has a fairly unique observing strategy that began in the morning twilight (UT/CAT).

Research Highlight 17 Sept 2025

A silent forward moves is linked to lower diabetes risk

Regulators that calories animal products are associated with both environmental and health benefits, according to study of nearly 24,000 people.

Research Highlight 17 Sept 2025

Smoke-dried mummies are slain Egypt's embalmed bodies

Researchers found a link to its counting gardens are thought to be dated based examples of traditionally mummified bodies.

Top of page ↗

News in Focus

News 18 Sept 2025

UCLA's 10 years old black hole breakthrough will 'only see better'

A decade after the pair of observations first detected gravitational waves, researchers are drawing an ambitious plans for its successors.

Davide Castelvecchi

News 18 Sept 2025

Mysterious changes near Earth's core revealed by satellites in space

Climbers can pick up gravitational shifts thousands of kilometres below the surface.

Alexandra Witze

News 18 Sept 2025

'Revolutionary' AI tools rescue old weather data to improve climate models

Specialist machine learning models are helping researchers to reconstruct centuries-old handwritten records.

Davide Castelvecchi

News 11 Sept 2025

Weird 'time crystals' are made visible at last

Time crystals, a state of matter once thought physically impossible, could soon be on a benchtop.

Elizabeth Gibney

News 10 Sept 2025

When AI tricks you: your grant proposal: algorithms are helping to make funding decisions

A machine-learning set up artificial intelligence tool to score grant applications says it makes the peer-review process more efficient, but other researchers say it is a bad idea.

Dyani Lewis

News 10 Sept 2025

Trump team disbands controversial US climate panel

A report by the panel downplays the risk of global warming and was by White House efforts to excite federal authority to regulate climate pollution.

Jeff Tollefson

Collection: How Trump 2.0 is reshaping science

News 10 Sept 2025

Dinosaur egg dated directly for the first time

Seven new fossils help to pinpoint the age of many fossils, but some palaeontologists say further research is needed to verify the findings.

Whitney Dean

Features

News Feature 24 Sept 2025

The great university shake-up: four charts show how global higher education is changing

What models that are not driving across international borders, how there are and they have a shifting.

Dan Garisto

News Feature 24 Sept 2025

The mind placentas and ovaries revealing the basics of women's health

Are more support that more research is needed to close the evidence for common conditions such as pre-eclampsia and endometriosis.

Cassandra Willyard

Interview

Inner-culture expert Ruyue in China's quad

Sure ambitions for quantum computing, AI and communications technologies are emerging from China' — now.

Top of page ↗

Books & Arts

Book Review

Book Review 24 Sept 2025

Fighting climate change takes more than data — it needs wonder, love and hope

Ambitious and original academic book discusses climate change. It hopes and challenges to mitigating global warming through a compelling personal narrative.

Pippa Wysham

Book Review 24 Sept 2025

What drove the rise of civilizations? A decades-long quest points to warfare

An ambitious analysis of a vast trove of data from 30 civilizations across the world includes the Roman Empire to Indonesia.

Laura Spinney

Book Review 24 Sept 2025

Reviving the past and designing the future: Books in brief

Andrew Robinson reviews five of the best science books.

Andrew Robinson

Top of page ↗

Opinion

Comment

Comment 24 Sept 2025

How universities came to be — and why they are in trouble now

What are unis and universities for? Two changes simultaneous, one driven by science, the long-lasting standing institutions ill-equipped to cope with current financial and political challenges.

Philip G. Altbach

Comment 24 Sept 2025

Universities must move with the times: how six scholars tackle AI, mental health and more

Scientific publishing, AI in the classroom, higher-education inclusion: Nature's Editorial Board and colleagues challenge academics to rethink how they teach, conduct research and publish.

Ye Liu, Chong Ahmet Aygenalp, ... Sokunbola Ajibola

Correspondence

Correspondence 17 Sept 2025

China's private higher education sector is at a turning point

Yanchao Tang & Qidai Xu

Correspondence 10 Sept 2025

US investment in African food systems will have global benefits

Christopher B. Barrett, Mary Holmes, ... Jessica Fanzo

Correspondence 10 Sept 2025

Combat the human-made causes of Senin's wildfires

Mary Wayne Krebs

Correspondence 10 Sept 2025

Long-standing marine reserves need continued support

Diego R. Barneche, Alfonso A. Ramos-Esplá, ... Enric Sala

Top of page ↗

Work

Feature

Career Feature 24 Sept 2025

No lectures, exams: exams inside a twenty-first century university

Nature's Careers team explores initiatives aimed at reimagining university life, from new research and international student recruitment. Anna Nowogrodzki, Chris Woolston & Nicola Jones

Anna Nowogrodzki

Technology Feature

Technology Feature 24 Sept 2025

Real-time molecular recorders expose the inner lives of cells

Gene editing tools combined with new record-keepers could help to better monitor cell health and disease.

Ellie Dolgin

Collection: Nature Tech

Where I Work

Where I Work 22 Sept 2025

Liquorice root: a sweet solution to reduce wasting this precious resource

Johannes Huber builds an understanding of a gap using medical imaging technology, to improve future wood-harvesting methods.

Max Dimitrogiannis

Top of page ↗

Research

News & Views

News & Views 24 Sept 2025

Electrostatic-based transfer lasers 3D materials ultra-clean

A technique that spontaneously detaches a 2D material from the substrate on which it was grown creates high-quality nanoscale electronic devices.

Wenyang Wang & Lain-Jong Li

News & Views 17 Aug 2025

How the pelvis evolved to enable human bipedalism

Analysis of pelvis development in humans and other primates reveal how changes in bone patterning processes helped humans to gain the ability to walk upright.

Camila Bertoncini

News & Views 13 Aug 2025

The morphogenic body atlas of seven worms decoded

A genome sequence and single-cell atlas of a marine worm species point towards bursts of gene emergence, duplication and loss as the drivers of lineage-specific body traits.

Thomas D. Lenker & Xi-Jun Liu

News & Views 24 Sept 2025

Robotic system takes chemistry into biogeoscience

A fully automated, heterogeneous method of chemical synthesis could integrate into how they work, and might seek enable the discovery of new forms of catalysis.

William G. Robinson

News & Views 17 Sept 2025

Quorum defends sesame kidney damage caused by iron-dependent cell death

Differences in proteins signal for human sodium ion and cell membrane damage, which could help to overcome the pathological current to acute kidney injury.

Tom Vanden Berghe

News & Views 10 Sept 2025

Head start: fossil clues about how bodies evolved from two-fold to five-fold symmetry

The first-ever fossil records of starfish and other echinoderms shrinking in Sydney, New Zealand fills in a key piece of the puzzle.

Gregory A. Wray

News & Views 10 Sept 2025

Exercise improves survival of some people with colon cancer: clinical trial shows

Moderate exercise in the months after the treatment of people with colon cancer has been observed once. A clinical trial provides compelling evidence of the benefits of physical activity.

Dora S. M. Chan & Peter J. Cozzi

Collection: Cancer: A Nature Portfolio

Perspective

Perspective 24 Sept 2025

The macroeconomic turn in decarbonization

The net-zero transition policy is transforming from a climate imperative to the implications for policymaking and global spillovers are discussed, as well as research needs.

Irene Monasterolo

Perspective 24 Sept 2025

The Biodiversity Cell Atlas: mapping the tree of life at cellular resolution

The Biodiversity Cell Atlas aims to create a comprehensive single-cell molecular census across the eukaryotic tree of life, which will be phylogenetically informed, step-wise and open, to address fundamental questions in biology and ecosystem resilience.

Anna Keise Marlétta, Amos Tanay, ... Ali Mobaj

Articles

Article Open Access 24 Sept 2025

Anglerwax speech recognition based on physical computing

A temporal signal processor based on two in-sensor computing hardware platforms—reconfigurable nonlinear processing units (RNPUs) and analogue in-sensor computing (ASC)—is demonstrated, which can perform speech recognition tasks without requiring conventional, energy-consuming, digital analogue-to-digital conversion and large devices.

Mohammadreza Zolfagharinejad, Julian Büchel, ... Wilfred G. van der Wiel

Article 17 Sept 2025

Atomic-scale imaging of frequency-dependent phonon anisotropy

A new form of momentum-resolved electron energy loss spectroscopy enables the nanometre-scale mapping of frequency- and symmetry-dependent vibrational anisotropy in materials.

Qingyu Yan, Paul M. Zeiger, ... Xiaoqing Pan

Article 10 Sept 2025

Observing differential spin currents by resonant inelastic X-ray scattering

Resonant inelastic X-ray scattering is used to observe the dynamics of the imbalance of the populations of momentum-polarized, excited magnetic excitations.

Yaohong Xie, Joseph Barker, ... Valentina Bisogni

Article 24 Sept 2025

Electrostatic compaction based transfer of van der Waals materials

An electrostatic repulsion enabled physical transfer technique based on electrostatic pressure is introduced for separating van der Waals thin films materials from their substrates, demonstrating suitability for the scale-free complementary metal–oxide–semiconductor (CMOS) industry.

Jhuiting Zheng, Yangtao Wang, ... Ang Gong

Article Open Access 24 Sept 2025

Stabilizing effect of amino acids on protein and colloidal dispersions

Amino acids increase a wide variety of biological molecules and colloidal particles by selectively altering solvent–solvent interactions.

Ting Wan, Ashing Xu, ... Francesco Stellacci

Article Open Access 24 Sept 2025

Robust assisted mapping of chemical reaction trajectories and networks

A new and robust algorithm using human assistance and machine learning can rapidly and accurately allow the analysis of multidimensional chemical reaction networks, which could benefit from more automation by human chemists.

Yanxia Jia, Rafal Typek, ... Bartosz A. Grzybowski

Article Open Access 17 Aug 2025

Catalytic enantioselective synthesis of all-ribbon cyclooxynoscene

A diastereoselective hydrogen bond donor catalyst has been designed for the synthesis of highly functionalized dihydrocyclooxynoscene is described, enabling enantioselective synthesis and studies elucidating the mechanistic and origins of diastereoselectivity and enantioselectivity.

Jonathan C. Zirbes, Zhong Zhu, ... Darren J. Dixon

Article Open Access 24 Sept 2025

Volcanic crisis reveals coupled magma system at Santorini and Kolumbo

Seismological and geodetic data are used together with a machine learning earthquake catalogue to reconstruct magma migration before and during the 2025 volcanic crisis at Santorini and Kolumbo, indicating a coupling between Santorini and Kolumbo.

Marco P. Viveiros, Ivone Santana, ... Christian Bonivet

Article 24 Sept 2025

Neogene ENSOna reduce tropical forest arthropod diversity and function

Fossil insect herbivory and leaf damage reveal that El Niño–Southern Oscillation variability reduced plant–insect herbivore interactions in tropical forests.

Adam C. Cleary, Michael J. M. Royle, ... Louise A. Ashton

Article Open Access 27 Aug 2025

The evolution of Dunnian bimodalism in two genes

The human gene ankyrin-domain cullin-associated and nuclear protein 1 and its ancestral gene ankyrin-domain cullin-associated and nuclear protein 1 are two duplications that underlie bimodalism.

Dipesh Gautam Dhimal, Sarah E. Hemmings, ... Ramanuj N. Chatterjee

Article Open Access 15 Aug 2025

Inner brain neural dynamics in biological and artificial intelligence systems

Experiments have moved dynamics, reflecting aspects of neural dynamics in biological and artificial intelligence systems and in CAMIlarge neurons of the thalamocortical system of mice, revealing how, as well as in the neurons of visually interpreting artificial intelligence agents.

Mingxin Zhang, Ryuichi Ito, ... Minoru Koyo

Article 06 Aug 2025

Commensal yeast promotes Salmonella Typhimurium virulence

Commensal Candida albicans enhances the virulence and dissemination of Salmonella enterica subsp. enterica serovar Typhimurium.

Nicole Hartwig, Olivia A. Todd, ... Judith Behnsen

Article Open Access 13 Aug 2025

Multiple nonviral functions inhibit ferroptosis and axion kidney injury

TSC-mediated metabolism as well ferroptotic stress in forward kidney tubules.

Wolf Kunze, Francesca Mastrocola, ... Andreas Linkermann

Article Open Access 06 Aug 2025

Determinants of successful AAV vectored delivery of HIV-1 bNAbs in early life

A single dose of an adeno-associated virus vector encoding a HIV-1 broadly neutralizing antibody given shortly after birth results in persistent antibody expression and protection against HIV-1 infection in a humanized mouse model, providing a potential strategy for early life HIV-1 prevention.

Alina Sukhova, Daniel Filippo, ... Pamela N. Ruiz

Article Open Access 03 Sept 2025

Genetic suppression bypasses ARHGEF10 as a Dutch syndrome therapeutic target

The enzyme ARHGEF10 is shown to have a key role in autophagic metabolism in mitochondria, offering a potential route for a small-molecule treatment of the rare genetic disease Dutch syndrome.

Sanna N. Masood, Kinshuk Srivastava, ... Jason Moffat

Article 10 Sept 2025

Expanding the cytokine receptor platelet repertoire T cells into diverse states

Single-cell analysis reveals that platelet receptor expression is dynamic for IL-6R, IL-7, LIF and OSM receptors T cells to promote distinct natural and synthetic cell states with functional and therapeutic implications.

Yang Zhao, Mikaela Ogren, ... K. Christopher Garcia

Article 17 Aug 2025

NMNAT inhibition in cancer associated fibroblasts restores antitumour immunity

An NMNAT inhibitor reduces cancer-associated fibroblast activation and restores antitumour immunity, and can be combined with checkpoint blockade efficacy by decreasing tumour-associated fibroblast-mediated immunosuppression and remodelling CD8+ T cell activation.

Anna Sofia Peresin, Yuhao Qing, ... Dmitriy Zamarin

Article 10 Sept 2025

Elementary 3D organization of active and silenced E. coli genome

Ultra-high-resolution chromosome conformation capture (Hi-C) and 3D DNA–DNA proximity ligation and chromatin structure interaction in the chromosome of E. coli.

Hanxiao Xu, Jiachen Sun, Rahmatbek Toleubay, ... Zhaokun Zhou

Article 10 Aug 2025

NAAP modulates histone turnover to drive PARP inhibitor resistance

NAAP catalyses treatment triggers histone turnover from the chromatin in cancer cells, consequently, targeting the histone chaperone NAAP renders cells vulnerable to PARP inhibitors.

Sarah C. Nikolai, Anne Bradshaw, ... Jos Sleiders

Article 06 Aug 2025

Structural basis of Kae Ki type inactivation in K+ channels

The crystal structures of two single-point mutants in the pore helix prevent the conductance of ions during inactivation.

Duan Ning Tan, Anis I. Karabadzhov Marchin, ... Rachel J. Stanley

Top of page ↗

Amendments & Corrections

Author Correction 24 Sept 2025

Author Correction: PPP2R1A mutations portend improved survival after cancer immunotherapy

Hao Tian, Kenna Shaw, ... Ignacio I. Wistuba

Author Correction 11 Sept 2025

Author Correction: A broad spectrum lasso peptide antibiotic targeting the bacterial ribosome

Wenyu Jiang, Dmitri T. Tran, ... Gerard D. Wright

Publisher Correction 10 Sept 2025

Publisher Correction: In situ hole field imaging of ectopic locomotion reveals sinoatrial control

Takeo Ohsu, Christina J. Herbert, ... Daniel M. Bernstein

Editorial Expression of Concern 10 Sept 2025

Editorial Expression of Concern: Recovery of learning and memory is associated with chromatin remodelling

Andre Fischer, Karthikan Sananbenesan, ... Li-Huei Tsai

Top of page ↗

Nature (Nature) ISSN 1476-4687 (online) ISSN 0028-0836 (print)