HEA STEM:
Support for the Physical Sciences, Engineering and Materials
Paul Yates, Discipline Lead Physical Sciences
Gill Cooke, Discipline Lead Engineering and Materials
The Higher Education Academy

The HEA champions excellent learning and teaching in higher education.

We do this by recognising and rewarding excellent teaching, bringing together people and resources to research and share best practice, and by helping to influence, shape and implement policy.
HEA Categories of work

Academic practice development
Teacher excellence
Institutional strategy and change
HEA Academic Practice

STEM

Social Science

Health

Arts and Humanities
HEA STEM Disciplines

Geography, Earth and Environmental Sciences
Physical Sciences
Biological Sciences
Computing
Maths Stats and OR
Engineering
Built Environment
Psychology
Physical Sciences

Astronomy
Chemistry
Forensic science
Physics
Engineering and Materials

Materials Science
General Engineering
Civil Engineering
Mechanical Engineering
Aerospace Engineering
Naval Architecture
Electronic and Electrical Engineering
Production and Manufacturing Engineering
Chemical, Process and Energy Engineering
Minerals Technology
Metallurgy
Ceramics and glasses
Polymers and Textiles
Maritime Technology
Industrial Biotechnology
Other: Engineering, Materials, Technology
Integrated Thematic Work

Internationalisation
Assessment and feedback
Employability
Flexible learning
Retention and success
Reward and recognition
Education for Sustainable Development
Students as Partners
Our recognition scheme contributes towards the professionalisation of teaching by conferring the status of:

**AFHEA** – Associate Fellow of the Higher Education Academy  
**FHEA** – Fellows of the Higher Education Academy (via NAP)  
**SFHEA** - Senior Fellow of the Higher Education Academy  
**PFHEA** – Principal Fellow of the Higher Education Academy

Individual and accredited routes

[http://www.heacademy.ac.uk/professional-recognition](http://www.heacademy.ac.uk/professional-recognition)

The scheme is closely referenced to the UK Professional Standards Framework (UKPSF)
Publications

Newsletter — subscribe at http://www.heacademy.ac.uk/my_academy

New Directions
http://www.heacademy.ac.uk/journals/new-directions

Engineering Education
http://www.heacademy.ac.uk/journals/detail/engineering-education

Twice yearly journal in paper and electronic forms
Change Mailing List Subscriptions

You are currently subscribed to the mailing lists below and receive newsletters for anything that is ticked.

To unsubscribe from a newsletter remove the tick and click the "Update Subscriptions". If you would like to receive any other newsletter please tick the relevant box and click "Update Subscriptions."

- Geography, Earth and Environmental Sciences
- Physical Sciences
- TechDis
- Funding Opportunities
- Wales Update
- Northern Ireland Update
- Assessment and Feedback
- College Based HE (HE in FE)
- HEA STEM
- Biological Sciences
- Dance, Drama and Music
- Languages and Linguistics
- History
- Health and Social Care
- Education
- Politics
- Built Environment
- Engineering and Materials
- Internationalisation
- HEA Change services
- MSOR Connections
- Psychology
- Academy Update
- Islamic Studies Newsletter
- Scotland Update
- Equality and Diversity in the Curriculum
- Employability
- Maths, Stats and OR Newsletter
- Education for Sustainable Development
- Art and Design
- Media and Communications
- English and Creative Writing
- Philosophical and Religious Studies
- Business Education
- Law
- Sociology
- Computing
- Flexible learning
- Postgraduate surveys
- Retention and Success

Update subscriptions
Educational research: reviewing the literature

Learning chemistry through placements: building on good practice and identifying new opportunities

A blended-learning approach to supporting students in organic chemistry: methodology and outcomes

A case study exploring students’ problem-solving strategies in a PBL chemistry task

A clerical error provides a unique opportunity to study the effect of previously seen exam questions on exam results

A view of first year transition from Down Under
Role of commercial software in teaching finite element analysis at undergraduate level: a case study

Unemployment of engineering graduates: the key issues

Feedback for enhanced student performance: lessons from simple control theory

Transnational education and engineering accreditations

A networked demonstrator help request system for laboratory work

Manufacturing excellent engineers: skill development in a Masters programme

A quest for helpful feedback to programming coursework
New to Teaching Events

Residential for new academic staff

One day for postgraduate students and postdoctoral researchers
HEA STEM (Physical Sciences): New To Teaching in the Physical Sciences

Date: 16 May 2013 - 17 May 2013
Start Time: 12:30 pm
Location/venue: Mercure Hotel, Manchester Piccadilly, Manchester.

This event is for academic staff who are new to teaching (have been teaching for less than five years) and would like a chance to develop their teaching skills in the context of their own discipline.

During the event, you will have the opportunity to get to know others both in your subject and across the four physical science subjects. We will also explore ways in which you can continue to work together after the event.

Registration, lunches, dinner and accommodation are free to staff members of a subscribing institution to the Higher Education Academy. Non-subscribing institutions there is a charge of £150

Thursday 16th May
1230-1300 Arrival and registration
1300-1400 Lunch
1400-1430 Welcome and introductions
1430-1500 The academic role in the physical sciences
1500-1615 Developing your lecturing skills
1615-1645 Refreshments
1645-1800 Developing your tutorial/problem class teaching skills

Related documents/links
Booking Form
Join us in Birmingham, April 17 and 18 2013

http://www.heacademy.ac.uk/events/detail/2012/17_18_Apr_HEA_STEM_2013_Conf_Bham

Special Sessions for Lab teaching

Technicians of the Year Awards
Workshop Series 2012-2013

Clickers Reloaded: Current practice and future trends in the use of electronic voting systems for teaching and learning

Improving learner experience in forensic science higher education and practitioner training

Lectures without lecturing

Investigating and enhancing students' problem-solving strategies

New developments in laboratory work

Teaching thermodynamics
UK Travel Fund

Conferences, network meetings, special interest groups
Up to £300
Open call
Decisions within one month of receipt
Need to be made at least a month before the event

http://www.heacademy.ac.uk/travel-fund
The Academy is building a community of Academic Associates to deliver and develop support for learning and teaching in higher education.

This consists of academics with current experience, who are leaders in their field, can work as part of a team, and who share the HEA's ambition to improve learning and teaching and the student learning experience.

http://www.heacademy.ac.uk/academic-associates
Repository of forensic science undergraduate research projects
Virtual Teaching Fellow Network in physics
Library of video clips showing teaching scenarios
Building a community of astronomy teachers

Mapping UKPSF to Chartered Engineer Requirements
Teaching Maths to Engineers: summary of resources
Reviewers
Teaching Development Grants

• Individual
  • Up to £7k

• Departmental
  • Up to £30k

• Collaborative
  • Up to £60k

Key themes are assessment and feedback and flexible learning
http://www.heacademy.ac.uk/tdg
Funded Projects

A comparative study of the expectations and attainment in assessment of international students in science, engineering and mathematics

Enhancing Employability for Chemists Through Personal Marketing and the Language of Industry

Research Environments For International Research Students (REFIRS)

The development of a set of student self study concordancing activities for the scientific foundation level corpus - FOCUS
The HEA Doctoral Programme forms part of the Academy’s strategy to undertake research to develop pedagogical knowledge and evidence-based practice in HE. The Academy invites supervisors in UK Higher Education Institutions (HEIs) to bid to host one or more of these doctoral studentships.

The proposed topic should be discipline specific learning and teaching research or interdisciplinary/generic pedagogical research and should have a clear benefit to either practice or to policy on practice. The research should be aligned with the HEA themes.

http://www.heacademy.ac.uk/doctoral-programme
Funded Doctoral Project

Using Peerwise to develop student problem solving skills
International Scholarships

The HEA’s international scholarship scheme has been designed to benefit the UK Higher Education sector by bringing back interesting, challenging and innovative learning and teaching practice to the UK after visits of 3-6 months.

This scheme is aimed at supporting individuals in the sector to undertake specific investigations outside of the UK and deliver specific outcomes for dissemination within the UK sector at the end of the scholarship through various means, as appropriate to enhance the UK student learning experience.

Maximum £20k

http://www.heacademy.ac.uk/international-scholarship-scheme
An investigation of interactive technology’s potential impact on student success and its ability to support flexible learning
External Examiners in Chemistry

Why not participate in this interesting research project on using standards in the external examination process? Participation will allow you to:

• reflect on your practice as an external examiner
• enrich your academic development
• contribute to the debate on standards in higher education

Your involvement requires a total of three hours for which you are offered £70 in acknowledgement of your time. For further information about the project and how to become a participant see http://www.brookes.ac.uk/aske/.
Consultancy

Two free days available per institution per year

Additional days may be purchased

Example: Developing appropriate assessment at Masters level
Higher education providers are experiencing unprecedented changes which are challenging traditional approaches to learning and teaching. The HEA offers a range of services designed to help institutions, faculties and/or departments adapt to these changes and thereby enhance the student learning experience.

http://www.heacademy.ac.uk/change
Key Contacts

E-mail: paul.yates@heacademy.ac.uk
Website: http://www.heacademy.ac.uk/disciplines/physical-sciences
Twitter: @HEAphyssci

Email: gill.cooke@heacademy.ac.uk
Website: http://www.heacademy.ac.uk/disciplines/engineering
Twitter: @HEAengineering