

Professional Development and Communities of Practice in the Mathematical Sciences

HoDoMS Conference

Friday 5 April 2013

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<http://www.heacademy.ac.uk/disciplines/maths-stats-or>

Presentation outline

- The Higher Education Academy
- Training and events
- Publications
- Service provision in the Mathematical Sciences
- Building communities of practice
- Professional recognition for teaching
- Funding
- HEA thematic areas

The Higher Education Academy



- Our work at the Higher Education Academy (HEA) is focussed on **improving the quality of the student experience** in higher education.
- We are funded by grants from the UK higher education funding bodies, subscriptions from higher education institutions and other grant and contract income.
- The HEA is based in York, with offices in Edinburgh and Cardiff.

HEA structure and activities

The delivery of services is through activities in two areas.

1. **Academic practice**

Activities include workshops and conferences, new to teaching events, teaching development grants, developing resources and journals.

2. **Research and policy**

Activities include accreditation services, professional recognition for teaching, national teaching awards, surveys and consultancy.

Academic practice

- This is subdivided into five clusters:
STEM, Health Sciences, Social Sciences, Arts & Humanities,
Leadership & Strategy.
Mathematics, Statistics and Operational Research is in STEM.
- Each cluster has a Head and each discipline has a designated
Discipline Lead.
- Academic Associates assist with the delivery of work.

STEM Disciplines

- Biological Sciences
- Built Environment
- Computer Science
- Engineering
- Geography, Earth and Environmental Science
- Mathematics, Statistics & Operational Research
- Physical Sciences
- Psychology

Contact information for Discipline Leads is available at

<http://www.heacademy.ac.uk/disciplines>.

Training for Teaching

Induction Course for New Lecturers in Mathematics, Statistics and Operational Research

- The course ran from 12-13 September 2012 at the University of Nottingham.
- 29 lecturers attended from all over the UK.
- Overall satisfaction was at 95.6%.
- One attendee wrote a blog about the course.

Training for Teaching

Workshops for postgraduate (PG) students who teach

- These ran from September 2012 to February 2013 and were attended by students from all four nations.
- Events ran in universities in England and Northern Ireland.
- A national level event ran in Scotland.
- Over 320 students attended.
- The average overall satisfaction was 95.1%.

MSOR Connections

- *MSOR Connections* contains articles about teaching, learning and assessment in Mathematics, Statistics and OR.
- It is now published directly by the HEA.
- Past issues are available via the discipline page

<http://www.heacademy.ac.uk/disciplines/maths-stats-or>



New Submission Arrangements

- Articles and enquiries should be emailed to Connections@heacademy.ac.uk.

More on *MSOR Connections*

Changes to processes

- The editor has remained unchanged.
- An editorial board has been set up.
- We are currently recruiting reviewers.
- Greater use will be made of reviewing and publishing platforms.

Advantages

- Academic searching tools will be able to locate articles more easily.
This will increase academic visibility and potentially increase citations.
- The peer review process will be more evident and benefit authors.

Service Provision

Background

- In 2012 the HEA Mathematics, Statistics and Operational Research discipline set up a working group to look at good practice in service provision in the Mathematical Sciences.
- In January 2013 a survey was circulated to determine the current position of service provision offered by Mathematical Sciences departments. The outcomes will be published later in the year.

Communities of Practice

“... a well functioning community of practice is a good context to explore radically new insights without becoming fools or stuck in some dead end. A history of mutual engagement around a joint enterprise is an ideal context for this kind of leading-edge learning, which requires a strong bond of communal competence along with a deep respect for the particularity of experience. When these conditions are in place, communities of practice are a privileged locus for the *creation* of knowledge.”

Etienne Wenger (1998)

Wenger, E. (1998). *Communities of Practice, Learning, Meaning and Identity*, Cambridge University Press pp. 214.

Building a Community of Practice



- **Mathematics, Statistics and OR for All: Sharing Good Practice in Service Teaching in the Mathematical Sciences**

Friday 17 May 2013, University of Manchester

http://www.heacademy.ac.uk/events/detail/2013/17_May_MSOR_Manchester

Purpose of the event

- The event aims to bring together staff involved in service provision to meet and share good practice. We hope to build a community of practice of colleagues engaged in the delivery of service provision.

Linking Practice and Research

- **Higher Education Mathematics: Linking the Learner to Teaching and Assessment**

Thursday 23 May 2013, Loughborough University

[http://www.heacademy.ac.uk/events/detail/2013/
23_May_MSOR_linking_the_learner](http://www.heacademy.ac.uk/events/detail/2013/23_May_MSOR_linking_the_learner)

Purpose of the event

- The event aims to bring together practitioners and researchers to share experiences about the factors impacting on Mathematics teaching and assessment.

Professional recognition

- The HEA enables individuals to obtain professional recognition for teaching through the HEA Fellowship scheme.

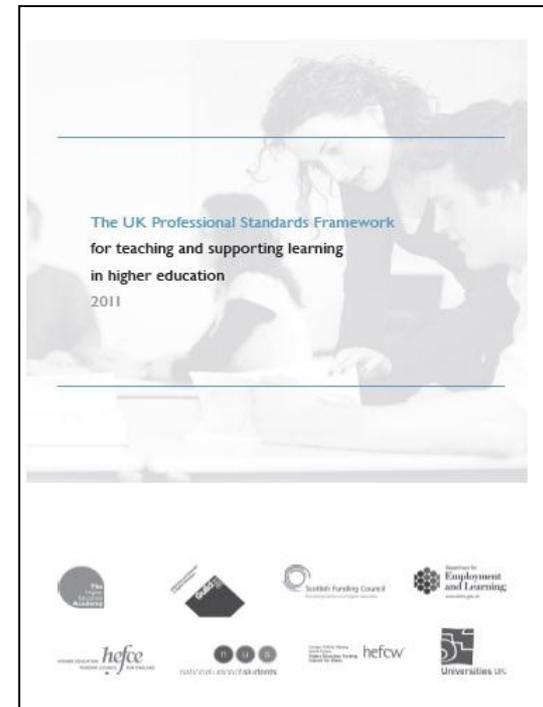
Categories of HEA Fellowship since November 2011

- Associate Fellow
- Fellow
- Senior Fellow
- Principal Fellow

These are defined by the UK Professional Standards Framework (UKPSF).

UK Professional Standards Framework

- The UKPSF is a description of the professional role of **teaching and supporting learning** within the higher education (HE) environment from the **perspective of the practitioner.**
- It has been developed by the HEA on behalf of the HE sector.
- It has been endorsed by the HE sector and is owned by the sector.



What is contained in the UKPSF?

- It consists of three dimensions of practice and four descriptors.
- The **dimensions of practice** define *the where, the what* and *the why* associated with professional practice.
- The **descriptors** are used to identify types of HEA Fellowship.
(Associate Fellow - descriptor 1, Fellow – descriptor 2,
Senior Fellow - descriptor 3, Principal Fellow – descriptor 4)

Value to the practitioner

- The UKPSF provides a tool to assist reflection on current practice, with a view to realising enhancements.
- It is a framework to drive continuous professional development.

HEA Fellowship categories

Associate Fellow of the HEA

- Demonstrates an **understanding** of specific aspects of effective teaching, learning and support methods and student learning.

Fellow of the HEA

- Demonstrates a **broad understanding** of effective approaches to teaching and learning support as key contributions to high quality student learning.

HEA Fellowship categories

Senior Fellow of the HEA

- Demonstrates a **thorough understanding** of effective approaches to teaching and learning support as a key contribution to high quality student learning

Principal Fellow of the HEA

- Demonstrates a **sustained record of effective strategic leadership** in academic practice and academic development as a key contribution to high quality student learning

Application routes

Application routes for Fellow

The two possibilities are:

- by completion of an HEA accredited institutional programme, followed by a light touch application;
- by direct application in which an **analytic approach** is required.

Application routes for Senior Fellow and Principal Fellow

- One route is by a direct application process in which a **synoptic approach** is required.
- Some institutions have accredited routes as part of CPD frameworks.

Benefits of HEA Fellowships

- HEA Fellowships provide national recognition for professional practice.
- They are portable and recognised throughout the sector.
- Increasingly they are used in recruitment and promotional criteria.
- They open up funding opportunities.
- In some institutions they are linked with policy.
- The 2012/13 HESA returns require institutions to provide data about teaching qualifications and HEA Fellowships held by staff. (England, Wales, Northern Ireland, optional for Scotland).

More information about HEA Fellowships is available at

<http://www.heacademy.ac.uk/professional-recognition>.

Professional Development

- **Using Real-life Extended Mathematical Problems with Undergraduates: A Hands-on Experience**

Wednesday 5 June 2013, University of Bath

http://www.heacademy.ac.uk/events/detail/2013/05_June_MSOR_Bath

- This professional development opportunity has been developed especially for staff in the Mathematical Sciences.
- Attendees will experience working on extended real-life problems in an approach which can be integrated into undergraduate teaching.

Events from 2011-13

- Learning programming within a Mathematics course
- Teaching delivery methods and providing a research experience within the undergraduate curriculum
- Support for disabled students studying Mathematics and Statistics
- Supporting teaching Statistics
- Mathematics and Statistics support
- Employability of OR graduates
- Assessment practice
- HEA STEM Conference (range of themes)

Funding

Areas of funding offered in the last two years include:

- HEA Teaching Development Grants;
- HEA Doctoral Programme;
- HEA International Scholarship Scheme;
- HEA UK Travel Fund;
- HEA Workshop and Seminar Series.

More information is available at <http://www.heacademy.ac.uk/funding>.

HEA Thematic areas

For 2012/13 the thematic areas are:

- (a) assessment and feedback;
- (b) employability;
- (c) flexible learning (including online learning);
- (d) internationalisation;
- (e) retention and success;
- (f) students as partners;
- (g) **education for sustainable development;**
- (h) **reward and recognition.**

- Our work in the area of education for sustainable development (ESD) is about curricula and pedagogy that enhance graduates' capabilities to live and work sustainably.
- Substantial work has been done in generic contexts and in other disciplines.
- One session ran on this in the past at a CETL-MSOR Conference.
- How is this impacting on the Mathematical Sciences?

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