

Getting Started in Educational Research in the Sciences



List of Related Resources

We would highly recommend you consult the web pages on **Getting Started in Computer Science Education Research**^{*}, authored on behalf of the Information and Computer Sciences Subject Centre by: **Mike Joy**, Shanghau Sun, Jirarat Sitthiworachart, Jane Sinclair and Javier López. "This resource is aimed at academics whose background is principally in computing/IT at university level, and who are interested in developing their teaching activities with a view to research leading to publication." Much of the content is also relevant to staff in other science disciplines.

www.ics.heacademy.ac.uk/resources/pedagogical/cs_research/

Subject Centre Support

Funding

Small-scale funding is offered by Subject Centres and many Subject Centres also provide events and resources aimed at supporting individuals getting started in pedagogic research; although these are targeted at individual subject communities they may well prove useful or of interest to others. For details please refer to the Subject Centre for your discipline

www.heacademy.ac.uk/ourwork/networks/subjectcentres

The Centre for Bioscience offers grants to individuals of up to £3,000 and grants of up to £15,000 for department-level projects. The deadline for Expressions of Interest for Departmental Grants will be January 2008. The deadline for the next round of individual grants will be announced in due course.

www.bioscience.heacademy.ac.uk/funding/

Centre for Bioscience Resources

Browse and contribute to our wiki pages aimed at bioscientists interested in developing their teaching activities with a view to research leading to publication. Our intention is not to provide the definitive resource on bioscience education research but more to highlight the issues involved in such research, and direct you to appropriate resources which you can use to explore those issues in greater depth.

[//heabiowiki.leeds.ac.uk/wiki/index.php/Getting_Started_in_Bioscience_Education_Research](http://heabiowiki.leeds.ac.uk/wiki/index.php/Getting_Started_in_Bioscience_Education_Research)

Event report for similar event at Oxford Brookes University -

www.bioscience.heacademy.ac.uk/events/oxfordbrookes.aspx

Useful Publications

Carmichael, P., Johnstone, K., Jordan, K., Tracy, F. and Truscott, H. (2007) **Developing Evidence-Informed Practice in Undergraduate Teaching and Learning at the University of Cambridge** In D. Good, S. Greenwald, R. Cox and Goldman, M. (eds.) University Cooperation for Innovation: Lessons from the Cambridge-MIT Institute, Rotterdam: Sense Publishers.

Cohen, Manion and Morrison (2007) **Research Methods in Education** (6/e) London: RoutledgeFalmer.

Educational Research Abstracts Online (ERA) – Online (current issues only to non-members)

www.informaworld.com/smpp/title~content=t713417651

A database of abstracts covering the current international research in education. ERA includes abstracts from seven international abstracting journals which scan over 700 journals. It includes an online document request feature, and links to the British Library's Articles Direct TM document supply service. ERA is primarily aimed at educational researchers, academics, and students but is also valuable to practitioners. Coverage is broad and includes subjects such as educational technology, multicultural education, higher education, organisation management, sociology of education, special needs and technical education and training.

Entwistle, N., McCune, V. and Hounsell, J. (2002) Approaches to Studying and Perceptions of University Teaching-Learning Environments: Concepts, Measures and Preliminary Findings. ETL Occasional Paper 1.

www.tla.ed.ac.uk/etl/docs/ETLreport1.pdf

James, M. and Pedder, D. (2006). Beyond Method: assessment and learning practices and values. Curriculum Journal. 17(2), 109-138.

Planet Special Edition 5 (2003) **Linking Teaching & Research and Undertaking Pedagogic Research in Geography, Earth and Environmental Sciences**. GEES Subject Centre publication.

www.gees.ac.uk/planet/#P5

Reid, N. (2006) **Getting Started in Pedagogical Research in the Physical Sciences**. A Physical Sciences Practice Guide. ISBN 1-903815-07-X

An annotated Bibliography of Research into Teaching and Learning Update 2003-2006**. A Physical Sciences Practice Guide. Edited by Roger Gladwin. ISBN 1-903815-05-3

Tight M, (2005) **Research into Higher Education: an A-theoretical Community of Practice?** Higher Education Research & Development, Volume 23, Issue 4 2004, pages 395 – 411. ISSN-0729-4360

www.informaworld.com/10.1080/0729436042000276431

Trigwell, K. and Ashwin, P. (2003) Undergraduate students' Experience of Learning at the University of Oxford (Oxford: University of Oxford).

Sources of Advice on Evaluation

Harvey, J. Evaluation Cookbook, Learning Technology Dissemination Initiative, 1998. The Evaluation Cookbook is aimed specifically at lecturers.

www.icbl.hw.ac.uk/ltdi/cookbook/cookbook.pdf

Deliberations: Evaluation of Teaching and Courses

Resources providing examples of evaluation processes and tools used in a number of higher education institutions. Some links lead you to articles that discuss the issues.

www.city.londonmet.ac.uk/deliberations/evaluation/index.html

Explorations in Learning & Instruction: The Theory Into Practice (TIP) database is a tool intended to make learning and instructional theory more accessible to educators. The database contains brief summaries of 50 major theories of learning and instruction. These theories can also be accessed by learning domains and concepts.

[//tip.psychology.org/](http://tip.psychology.org/)

Evaluating a Materials Course – Print and Online (This guide is freely available, as one of a box-set of twelve on a range of themed areas for lecturers)

Print ISBN: 0-9546433-0-5

www.materials.ac.uk/guides/evaluating.asp

A guide for lecturers on how to evaluate a Materials Science course. It includes topics such as standard methods of evaluation, when to evaluate, how to frame questions and designing your own evaluation.

Research groups, projects and programmes

Teaching for Learning Network (TfLN)

The Teaching for Learning Network (TfLN) has grown out of pedagogical development activities funded by the Cambridge-MIT Institute (CMI), a collaboration between the University of Cambridge and the Massachusetts Institute of Technology (MIT). TfLN has been designed as a network supporting both intensive collaboration within its constituent projects and 'at-a-distance' sharing of approaches, interpretative frameworks, findings and outcomes.

www.tfln.org

Enhancing Teaching-Learning Environments in Undergraduate Courses

This ESRC-TLRP project was designed to support departments involved in undergraduate teaching in thinking about new ways of encouraging high quality learning. This collaborative research was underpinned by research into the quality of student learning and how it is influenced, not just by teaching and assessment, but by the whole teaching-learning environment. The project focussed on five discipline areas including cell and molecular biology. Research publications and outcomes can be accessed via the project website.

www.tla.ed.ac.uk/etl/publications.html

Bioscience & other Science Education Journals

* Includes lists of journals pertaining to Information and Computer Sciences Education Research and ** to Physical Sciences Education Research (for both see pages 1 & 2)

Advances in Physiology Education – Print and Online (full text)

Electronic ISSN: 1522-1229; Print ISSN: 1043-4046

[//advan.physiology.org/](http://advan.physiology.org/)

Quarterly publication containing peer-reviewed descriptions of strategies for teaching, reports of education research, critical reviews of current educational practice, essays on physiology education, and articles that organize the content of physiology for problem-centred learning. Published by the American Physiological Society. Online access is free to all. Access to the print version is by institutional or individual subscription.

Bioscience Education Electronic Journal (BEE-J) – Online (full text & PDFs)

ISSN 1479-7860

www.bioscience.heacademy.ac.uk/journal/

A peer-reviewed bi-annual publication of the Centre for Bioscience.

The journal publishes a range of original articles on tertiary level biosciences education, including peer-reviewed research and practice papers. The journal will be of interest to tertiary level staff and students and to upper secondary school staff. Contributions welcome!

Bioscience Education
 *journal*

Biochemistry and Molecular Biology Education – Print and Online (Tables of Contents and abstracts only without subscription) ISSN 1539-3429; Print ISSN 1470-8175

www3.interscience.wiley.com/cgi-bin/jhome/112782101

A bi-monthly publication containing articles on teaching techniques and practice, and methods of assessment of the effectiveness of new educational approaches, research in biochemistry and molecular biology education, and details of simple, tried and tested laboratory experiments. Issues also contain reviews of books and other teaching aids. Oxford Elsevier Science Ltd.

CAL-aborate – Print and Online (full text and PDFs to download)

ISSN 1443-4482

[//science.uniserve.edu.au/pubs/callab/](http://science.uniserve.edu.au/pubs/callab/)

An annual international non-refereed journal covering use of computers in Biochemistry, Biology, Chemistry, Computer Science, Geography, Geology, Mathematics & Statistics, Physics and Psychology Higher Education. Published by UniServe Science in collaboration with the Higher Education Academy Subject Centres, the Swedish Council for the Renewal of Higher Education and BioQUEST Curriculum Consortium, USA.

CBE- Life Science Education – Online (full text)

ISSN 1536-7509

www.lifescied.org/

CBE- Life Sciences Education is a free, quarterly online journal published by the American Society for Cell Biology (ASCB). The Journal publishes original, previously unpublished, peer-reviewed articles on life science education at the K-12 outreach, undergraduate and graduate levels. Within biology, CBE is particularly interested in how students are introduced to the study of life sciences, as well as approaches in cell biology, developmental biology, neuroscience, biochemistry, molecular biology, genetics, genomics, bioinformatics, and proteomics. All published articles are available freely online without subscription.

Focus on Microbiology Education – Online (open access to Tables of Contents; full text available to subscribers only) ISSN 1542 - 9210

www.microbelibrary.org/about/index.asp?bid=1079

Articles range from events, to current issues in the undergraduate microbiology curriculum, to technology in the classroom. Published by the American Society of Microbiology.

International Journal of Science Education – Print and Online (content pages only without subscription)

Print ISSN: 0950-0693; Online ISSN 1464-5289

www.tandf.co.uk/journals/tf/09500693.html

Studies in all settings for science education, i.e. informal, primary, secondary, higher, adult and continuing, and vocational. Contains general articles, innovations and developments, research reports and book reviews. Published by Taylor and Francis.

Journal of Biological Education – Print and Online (abstracts and hot-topics)

ISSN 0021-9266

www.iob.org/general.asp?section=publications&article=jbe.xml

This journal of applied educational research covers 2^o/3^o policy and curriculum developments and results of research into the teaching, learning and assessment of biology. Published quarterly by the Institute of Biology.

Journal of Chemical Education – **Print** and **Online** (Table of contents freely available, full articles to subscribers only)

[//jchemed.chem.wisc.edu/](http://jchemed.chem.wisc.edu/)

A monthly, subscription-only journal published in print. Full-text and supplemental materials for some articles are published online; available only to subscribers. Abstracts of articles are published online as is a searchable index of titles and authors. Although intended for the chemistry disciplines the journal contains both lab and classroom based activities that could be of interest to bioscientists. Published by the American Chemical Society.

Journal of Food Science Education – **Online** (current issues only to non-members)

[//members.ift.org/IFT/Pubs/JFSE/](http://members.ift.org/IFT/Pubs/JFSE/)

The Journal of Food Science Education (JFSE) is an online journal created to provide information on current innovations, trends, and issues surrounding food science education. It is published by the Institute of Food Technologists (Chicago, USA).

Journal of Geography in Higher Education – **Print** and **Online** (Tables of contents freely available, full articles to subscribers only)

Print ISSN: 0309-8265 Online ISSN1466-1845

www.tandf.co.uk/journals/carfax/03098265.html

Published three times a year, the Journal of Geography in Higher Education aims to show the importance of teaching and learning in higher education. Includes articles on fieldwork and teaching methods (e.g. PBL).

Journal of Microbiology & Biology Education (JM&BE) – **Online** (open access to Tables of Contents; full text available to subscribers only)

ISSN 1542-8818

www.microbelibrary.org/about/index.asp?bid=1076

A peer-reviewed publication published by the American Society for Microbiology showcasing scholarly work in the field of microbiology education. Its scope includes outcome-based learning activities and courses that convey important microbiological concepts; techniques used to study micro organisms; and assessment of student learning, teaching techniques, or program effectiveness.

Journal of Natural Resources and Life Sciences Education – **Print** and **Online** (current editions for subscribers only, archives available free to all)

Online ISSN: 1539-1582; Print ISSN 1059-9053

www.jnrlse.org/

The journal covers all disciplines in the life sciences, natural resources, and agriculture. Articles published include research, notes, case studies, software, slide sets, letters, editorials, profiles, and media reviews. Published annually by the American Society of Agronomy (Madison, Wisconsin).

Journal of Research in Science Teaching – **Online** (full text)

Print ISSN 0022-4308, Online ISSN 1098-2736

www3.interscience.wiley.com/cgi-bin/jhome/31817

Not specifically HE. Issues include reports on issues of science teaching and learning and science education policy. Articles include investigations employing qualitative, ethnographic, historical, survey, philosophical, or case study research approaches; position papers; policy perspectives; critical reviews of the literature; and comments and criticism. New York: John Wiley & Sons, Inc.

Journal of Undergraduate Neuroscience Education (JUNE) – **Online** (full text)

ISSN 1544-2896

www.funjournal.org/

JUNE is an online journal that publishes peer-reviewed reports of innovations in undergraduate neuroscience education. The journal provides a mechanism for faculty to exchange information regarding topics such as laboratory exercises, new media, curricular considerations, and teaching methods.

PLANET – **Print** and **Online** (full text)

www.gees.ac.uk/pubs/planet/

ISSN 1473-1835

The Geography, Earth and Environmental Sciences Subject Centre's biannual learning and teaching publication. Presents examples and case studies of good practice; some of which will be of interest to those teaching in the biosciences.

Proceedings of UniServe Science Workshops (various), University of Sydney – **Online** (full text)

[//science.uniserve.edu.au/pubs/procs/](http://science.uniserve.edu.au/pubs/procs/)

UniServe caters for undergraduate Earth, Life and Physical Sciences and promotes awareness and usefulness of materials and new technologies, available for use in teaching.

Science – **Online** (full text)

www.sciencemag.org/sciext/educationforum/

ScienceEducation Forum – last issue every month by American Association for the Advancement of Science.