Tertiary Education Commission
Te Amorangi Mātauranga Matua

Performance-Based Research Fund

Physical Sciences panel-specific guidelines 2012 Quality Evaluation

Introduction

The Performance-Based Research Fund (PBRF) 2012 Panels have developed guidelines to assist staff members with the processes of developing and submitting Evidence Portfolios (EPs). These guidelines provide advice on specific areas that relate to the subject area of Physical Sciences and do not replace or supersede the requirements for EPs that are set out in the *PBRF Quality Evaluation Guidelines 2012*.

The Physical Sciences Panel panel-specific guidelines must be read in conjunction with the *PBRF Quality Evaluation Guidelines 2012*. In areas where the panel-specific guidelines do not provide additional information, this is because the advice provided in the *PBRF Quality Evaluation Guidelines 2012* applies.

The panel will be primarily interested in assessing the quality of the NROs and the staff member's contribution to them, and can also take into account the quality of the outlets through which the research has been published.

Please note that peer review panels assess EPs without reference to Quality Categories gained by staff members from their participation in the 2003 and/or 2006 Quality Evaluations.

Physical Sciences panel-specific guidelines

Description of panel coverage

The Physical Sciences Panel will assess EPs in the subject areas described below. The descriptions should be considered a guide – they are not intended to be exhaustive.

Chemistry and physics

These two subject areas include theoretical, experimental and applied physics and chemistry, and inorganic, organic, physical and analytical chemistry including condensed matter and low temperature physics, astrophysics and astronomy, nuclear and high energy physics, instrumentation and engineering physics, environmental physics and chemistry, biophysics, medicinal chemistry, medical physics and chemistry and biological chemistry, optics and electronics, atmospheric, oceanic and climate physics and chemistry, materials physics and chemistry, organometallic chemistry, forensic physics and chemistry, spectroscopy, polymers, food chemistry, computational chemistry, structural chemistry, crystallography and natural products chemistry.

Earth sciences

This subject area includes meteorology and climatology, climate change, hydrology, soils, coastal processes, surface processes, geomorphology, glaciology, physical geography, petrology, geochemistry, mineralogy, stratigraphy, palaeontology, palaeobiology, geophysics, engineering geology, volcanology, sedimentology, tectonics, structural geology, all other branches of geology and surveying.

Cross-Referrals

The Physical Sciences Panel affirms that multidisciplinary and interdisciplinary EPs will be given the same weight as single-discipline EPs. This panel covers a broad range of subjects within the Physical Sciences and is structured to optimise the assessment of multidisciplinary and interdisciplinary research.

The Physical Sciences Panel expects to cross-refer EPs to other panels, or to call on the input of specialist advisers, as appropriate.

The membership of peer review panels is designed to enable panels to assess the quality of research in most areas, including those which have a professional or applied outcome. It is recognised, however, that a small number of staff members will have research outputs that require expert advice from outside the scope of the panel membership and/or that may need to be considered by one of the two Expert Advisory Groups.

Expectations for standard of evidence to be supplied

The Research Output component

It is expected that most research outputs submitted to the Physical Sciences Panel will be fully-refereed publications in international literature (including New Zealand literature of international repute), describing original research.

Staff members completing EPs may wish to indicate in some way the relative ranking a journal may have.

Generally, quality-assured research outputs will be given more weight than their non-quality-assured counterparts. The staff member's original research contributions to research outputs should be carefully stated.

Outputs that are multi-authored must be supported by a full description of the contribution being claimed: intellectual input, planning, writing, etc. A description of the staff member's role and their relationship to co-authors might also be helpful – that is, whether the co-authors are students, postdoctoral fellows, New Zealand or overseas colleagues or collaborators.

The Peer Esteem component

The Physical Sciences Panel will consider all relevant components and will give particular emphasis to the gaining of competitive access to major national or international facilities, invitations to work in overseas institutions, and editorship or memberships of advisory boards of international or national journals.

The Contribution to the Research Environment component

The Physical Sciences Panel will consider all relevant components and will give particular emphasis to evidence of postdoctoral fellows working with staff members, clear links with a visiting researcher or adjunct appointment, and successful engagement with industry. A leadership role in the development of research teams or centres is also emphasised.

Elaboration of the definition of Research

The general Guidelines apply, see Chapter 1 Section D: What Counts as Research?

Types of research output

The most common research output is expected to be publications in refereed literature. Conference papers will normally be regarded as less significant. Patents will be considered only if they have been granted and are available to the panel.

In most cases, such NROs will be examined by at least one panel member.

TEOs should note that all research outputs included in EPs must be consistent with the PBRF Definition of Research, as set out in the *PBRF Quality Evaluation*

	Guidelines 2012, and must be accompanied by evidence as to quality.
Additional advice from expert advisory groups	EPs can be referred to an Expert Advisory Group (EAG) by either a TEO or by the Chair of a peer review panel. Where an EP has been referred to an EAG and has **at least one** NRO that meets the criteria set out by that EAG, additional advice can be sought. A score and opinion on the EP will be provided back to the peer review panel the EP is assigned to. The criteria that will determine whether or not the Pacific Research and the Professional and Applied Research EAGs will accept EPs for consideration will be published on the TEC website.
Indications of the minimum quantity of research output expected to be produced during the assessment period	The general Guidelines apply, see Chapter 2 Section C: Guidelines for Completing the Research Output Component and Chapter 3 Section C: Assessing and Scoring the Three Components of an EP. In relation to new and emerging researchers, see Chapter 3, Section E: Assessing New and Emerging Researchers.
Special Circumstances	The general Guidelines apply, see Chapter 2 Section F: Dealing with Special Circumstances.
Definitions of Quality Categories	The general Guidelines apply, see the topic: What do the Quality Categories Mean? In Chapter 3 Section A: Panel Assessment: Introduction, and the final three topics of Chapter 3 Section D: Assessing and Scoring the Three Components of an EP – starting with Scoring an EP: Allocating Points for Research Outputs.
Treatment of non-standard, non-quality-assured and jointly produced research outputs	The general Guidelines apply, see the topics: Quality-Assured and Non-Quality-Assured Research Outputs and Outputs involving Joint Research in Chapter 2 Section C: Guidelines for Completing the Research Output Component. Where there are multiple authors, staff members must ensure that their contribution to the research output is clearly defined in the "My Contribution" section. In cases where co-authors include the same NRO in their EPs, staff members are encouraged to confer about the details of their contributions, to ensure that there is no conflict in the information provided. If there are more authors than the 2048 characters allow, staff members should abbreviate the author list up to and including their own name, followed by "et al". If this still does not fit, staff should give the first author, followed by "et a." and indicate clearly in the "My Contribution" section their position (e.g. 1st, 2nd, etc) in the list of authors.

	Whenever "et al". is used to abbreviate the author list, staff members should also indicate the total number of multiple authors.
Proportions of Nominated Research Outputs (NROs) to be examined[1]	It is intended that the Physical Sciences Panel will examine 25% of NROs in the EPs submitted to it.
Use of specialist advisers	The general Guidelines apply, see the topic: Using a Specialist Adviser in Chapter 3 Section B: Allocating EPs to Panel Members and Obtaining Additional Input.
Elaboration of the descriptor and tie-points for the Research Output (RO) component	**The RO component descriptor** The general Guidelines apply, see topics: Scoring the RO component and Scoring an EP: Allocating points for research outputs in Chapter 3 Section C: Assessing and Scoring the Three Components of an EP. *Tie-point 6* Evidence of a major contribution to all NROs, with some NROs published in major well-recognised journals. One or more NRO might be the equivalent of this in another form, e.g. books, book chapter, refereed conference paper or a patent. *Tie-point 4* Evidence of a significant contribution to all NROs, with some NROs published in well-recognised journals. One or more NRO might be the equivalent of this in another form, e.g. books, book chapter, refereed conference paper or a patent. *Tie-point 2* Evidence of a contribution to all NROs, with some NROs published in well-recognised journals. One or more NRO might be the equivalent of this in another form, e.g. books, book chapter, refereed conference paper or a patent.
Elaboration of the descriptor and tie-points for the Peer Esteem (PE) component	The general Guidelines apply, see topic: Scoring an EP: Allocating points for peer esteem in Chapter 3 Section C: Assessing and Scoring the Three Components of an EP.
Elaboration of the descriptor and tie-points for the Contribution to the Research Environment (CRE) component	The general Guidelines apply, see topic: Scoring an EP: Allocating points for contribution to the research environment in Chapter 3 Section C: Assessing and Scoring the Three Components of an EP.

[1] "Examined" is defined as either reading an NRO in full, substantially or sufficiently to make an informed assessment, or (for NROs which by their nature cannot be read) an equivalent level of scrutiny.