

Research Assessment Exercise 2014

Panel 01 – Biology **Specific Criteria and Working Methods**

(February 2014)

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Introduction

1. Panels of the Research Assessment Exercise (RAE) 2014 have formulated panel-specific guidelines to provide advice on the criteria and working methods in assessing submissions to the RAE 2014. This document sets out the specific criteria and working methods that the Biology Panel will apply. It should be read alongside the General Panel Guidelines. In areas where the panel-specific criteria do not provide further information, this is because the provisions in the General Panel Guidelines prevail and apply to the Panel without further elaboration or amplification.

2. The panel-specific guidelines may also assist institutions and staff members with the process of arranging submissions for assessment. These guidelines do not replace or supersede the requirements for submissions that are set out in the Guidance Notes for the RAE 2014.

3. The RAE 2014 is an expert review exercise. Panel members will exercise their knowledge, judgement and expertise to reach a collective view on the quality profile of research.

Section A: Submissions

Cost Centres under the Panel

4. The Biology Panel acknowledges the mapping of cost centres in Appendix B of the General Panel Guidelines, also in Appendix F of the Guidance Notes. The Panel covers the following cost centres:

- 6 biological sciences
- 9 other biological sciences (incl. environmental biology)
- 10 agriculture & food science
- 22 biotechnology

Weighting the Elements of the Assessment

5. The Panel will attach the default weighting to the three elements of the assessment as follows when determining the overall quality profile for each cost centre:

- Research outputs : 80%
- External competitive peer-reviewed research grants : 10%
- Esteem measures : 10%

Research Strategy Statements

6. Following paragraphs 2.15, 2.16 and 3.2 of the Guidance Notes and paragraph 15 of the General Panel Guidelines, Research Strategy Statements submitted by each institution and individual cost centres of each institution will provide contextual information for the Panel when assessing the submissions.

7. The Panel would particularly value information regarding the organisation of research within the cost centre, and the research strategy of the cost centre during the assessment period.

Output Types

8. The Biology Panel will consider the eligibility of research outputs as described in paragraph 18 of the General Panel Guidelines and paragraphs 5.8 to 5.12 of the Guidance Notes.

9. The Panel will assess the quality of each eligible item on its own merits and not in terms of its publication category, medium or language of

publication. The Panel will study each item in detail and will not assess outputs mechanistically according to the medium of publication. The Panel recognises that there can be work of the highest quality in various output forms, and no distinction will be made between types of output submitted nor whether the output has been made available electronically or in a physical form.

10. Forms of research outputs that are admissible and specifically relevant to the Biology Panel include the following examples. This should not be regarded as an exhaustive list. Equally, there is no implication of priority or importance in the ordering of examples in this list:

- books, book chapters and research monographs
- published conference papers and reports
- new materials, devices, products and processes
- patents awarded
- published papers in peer-reviewed journals
- review articles where these incorporate new research, or new hypotheses
- software, computer code and algorithms
- standards documents
- technical reports, including commissioned advisory reports

11. Research outputs will be assessed for the quality of original research they include. The Panel will accept the submission of review articles only where they contain a significant component of unpublished research or new insight. Such outputs will be judged only on their original research or novelty of insight.

Co-authored/Co-produced Outputs

12. The Panel confirms the principles on assessing co-authored/co-produced research outputs as set out in paragraphs 31 to 33 of the General Panel Guidelines.

Double-weighted Outputs

13. Paragraphs 29 and 30 of the General Panel Guidelines and paragraphs 5.13 to 5.14 of the Guidance Notes indicate that in exceptional cases an academic may request that outputs of extended scale and scope be double-weighted in the assessment. However, given the publication

patterns in its cost centres, this Panel does not expect to receive any items proposed for double-weighting.

Section B: Assessment Criteria: Research Outputs

Criteria and Quality Levels

14. Panel members will use their professional judgement with reference to international standards in assessing research outputs.

15. In assessing outputs, the Panel will look for evidence of originality, significance and rigour, and will grade each item into one of the five categories of quality level as set out in paragraph 19 of the General Panel Guidelines. The Panel will use the generic description of the quality levels as set out in paragraph 20 of the General Panel Guidelines.

16. In addition, the Biology Panel provides the following advice on their understanding of the quality definitions adopted for assessing research outputs:

The Panel will take into consideration the following characteristics in particular:

- significant rigour and excellence with regard to the design, research method, execution and analysis of the work
- whether or not the output has been subject to peer-review
- significant addition to knowledge and to the conceptual framework of the field
- potential and actual significance of the research both within and beyond the field concerned
- the scale, challenge and logistical difficulty posed by the research
- the logical coherence of argument
- contribution to theory-building
- significance of work to advance knowledge, skills, understanding and scholarship in theory, practice, education, management and/or policy
- applicability and significance to the relevant service users and research users
- potential applicability for policy in, for example, government or industry

Additional Information on Outputs

17. Other than the data as specified in the Guidance Notes, and unless specifically required by the Panel, no other information should be provided, and the Panel will take no account of any such information if submitted.

Metrics

18. While the Panel will study each item in detail for the assessment, the Panel may informally use citation data to inform its consideration of individual items. However, such data will not be used in any algorithmic or deterministic way for the evaluation of research quality. The Panel is aware of the limitations of citation data, in particular their variability within as well as between disciplines, and the need to consider that some excellent work takes time to achieve its full impact.

Section C: Assessment Criteria: External Competitive Peer-reviewed Research Grants

19. This Panel will review the completed proforma on external competitive peer-reviewed grants and the listing of the competitive peer-reviewed grants as described in paragraphs 7.2 to 7.4 of the Guidance Notes.

20. Pursuant to paragraphs 45 to 47 of the General Panel Guidelines, factors relevant to the Panel's evaluation of the submitted data are as follows:

- a. The value of research grant per staff member as an important indicator.
- b. That grants from UGC/RGC or Other Government funding or Hong Kong based non-government sources or Outside Hong Kong will be given particular consideration within the assessment.
- c. The distribution of research grants across staff submitted to a cost centre and between the areas of research indicated in the Research Strategy Statements.
- d. The trajectory of funding (relative growth or decline through the period) as an indicator of research vitality.
- e. The total number of grants as well as the total value of grants.
- f. The level of grant income in relation to areas of research reflected in the outputs submitted, recognising that some areas of research are less resource-intensive than others.

- g. The level of research grant income in relation to the research strategy indicated in the Research Strategy Statements.

Section D: Assessment Criteria: Esteem Measures

21. This Panel will assess esteem measures according to paragraphs 7.5 and 7.6 of the Guidance Notes. Esteem measures should be recognition conferred by an external body. They may include, but are not limited to, editorship of academic journals, research-based awards, honours or prizes, significant grants or donations for research, which are not competitive or peer-reviewed (e.g. industry research grants), government consultancy awarded through tender process.

22. Indicators of esteem that are of particular relevance to the Biology Panel include, but are not limited to, the following in no particular order:

- Advising government or industry
- Conference organisation
- Election to membership of academic societies
- External awards in recognition of research achievement
- Invited presentations at conferences
- Invited reviews
- Journal editorship
- Membership of editorial boards
- Membership of grant awarding bodies
- Membership of scientific advisory boards

23. Pursuant to paragraphs 48 to 50 of the General Panel Guidelines, this Panel will make an overall judgement about the indicators of esteem relating to individual academics and groups based on the following criteria:

- Collaborations with industry or other end-users of research, including in particular long-standing partnerships and knowledge transfer
- Exemplars of the impact of research activity on policy, practice and the quality of life.
- Exemplars of successful commercialisations activity
- Indicators of esteem awarded internationally will be assessed more highly than equivalent national indicators
- Indicators of esteem from government or industry will be particularly welcome

- Indicators of esteem will be assessed more highly if they indicate international recognition rather than solely national recognition
- Receipt of non-peer reviewed grants, donations or research contracts
- The distribution of esteem indicators across the staff submitted to a cost centre

Section E : Working Methods

Allocation of work

24. The Convenor, consulting the Deputy Convenor and other panel members as appropriate, will allocate work to members and if necessary external reviewers in light of their expertise and workload, and taking into account any potential conflicts of interest. All panel members will take account of the requirements of the General Panel Guidelines to ensure that the exercise is conducted fairly and transparently.

Use of Sub-Groups

25. The Biology Panel does not intend to establish sub-groups.

Assessment Process

26. Panel members will examine the submitted outputs in detail, and put forward a recommendation to the panel for a collective decision on the final grading. To ensure fairness and consistency, each research output will be assessed in detail by at least two members, one of whom should be a non-local member to the extent possible. Similarly, for those cost centres which are only housed at one or two local institutions, submissions should be assigned to at least one non-local member in order to ensure fair and impartial assessment.

27. Subject to conflicts of interest, the assessment of external peer-reviewed research grant and esteem measures will be undertaken by each member of the Panel and grading will be a collective decision of the Panel.

External Reviewers

28. This Panel will follow the procedure in paragraph 42 of the General Panel Guidelines when referral to external reviewers becomes necessary for panel assessment. External review may be sought in the case

of outputs describing interdisciplinary or pedagogic research, and any output for which members of the panel do not have the necessary expertise.

Cross Referral

29. This Panel will follow the process described in paragraphs 37 to 41 of the General Panel Guidelines when initiating and assessing cross-referrals by another panel or by cost centre(s) within the Panel.

30. Generally, research on pedagogy and education issues submitted to this Panel will be assessed by panel members or external reviewers with expertise in pedagogy. Exceptionally, such work may be cross-referred to Panel 13, Education.

Trial Assessment

31. Following paragraphs 67 and 68 of the General Panel Guidelines, the Panel will conduct a trial assessment using a sample of 18 outputs submitted to the Panel. These will be assessed by all members of the Panel and will represent a cross section of the research areas included within submissions. Items used for the trial assessment will be assessed again during the main assessment period without regard to their assessment during the trial. The trial assessment will also cover the general principles for evaluating external competitive peer-reviewed research grants and esteem measures.