Australian Research Council

Excellence in Research for Australia

28 July 2009
University of NSW
Objectives of ERA

1. establish an evaluation framework that gives government, industry, business and the wider community assurance of the excellence of research conducted in Australia’s institutions;

2. provide a national stocktake of discipline-level areas of research strength and areas where there is opportunity for development in Australia’s higher education institutions;

3. identify excellence across the full spectrum of research performance;

4. identify emerging research areas and opportunities for further development; and

5. allow for comparisons of Australia’s research nationally and internationally for all discipline areas.
## ERA Clusters

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cluster 1</td>
<td>Physical, Chemical and Earth Sciences</td>
</tr>
<tr>
<td><strong>Cluster 2</strong></td>
<td><strong>Humanities and Creative Arts</strong></td>
</tr>
<tr>
<td>Cluster 3</td>
<td>Engineering and Environmental Sciences</td>
</tr>
<tr>
<td>Cluster 4</td>
<td>Social, Behavioural and Economic Sciences</td>
</tr>
<tr>
<td>Cluster 5</td>
<td>Mathematics, Information and Computing Sciences</td>
</tr>
<tr>
<td>Cluster 6</td>
<td>Biological and Biotechnological Sciences</td>
</tr>
<tr>
<td>Cluster 7</td>
<td>Biomedical and Clinical Health Research</td>
</tr>
<tr>
<td>Cluster 8</td>
<td>Public and Allied Health Sciences</td>
</tr>
</tbody>
</table>
Research Codes

- RFCDS codes revised by Australian Bureau of Statistics
- Now ANZSRC codes – both grants and ERA

Two digit codes
- Eg., 21 history and archaeology

Four digit codes
- eg., 2103 Historical studies

Six digit codes
- Eg., 210302 Asian History
## The Discipline Matrix

<table>
<thead>
<tr>
<th>02 Physical Sciences</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0201 Astronomical and Space Sciences</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0202 Atomic, Molecular, Nuclear, Particle and Plasma Physics</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0203 Classical Physics</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0204 Condensed Matter Physics</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0205 Optical Physics</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0206 Quantum Physics</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0293 Other Physical Sciences</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>03 Chemical Sciences</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0301 Analytical Chemistry</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0302 Inorganic Chemistry</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0303 Macromolecular and Materials Chemistry</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0304 Medicinal and Biomolecular Chemistry</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0305 Organic Chemistry</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0306 Physical Chemistry (incl. Structure)</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0307 Theoretical and Computational Chemistry</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0393 Other Chemical Sciences</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>04 Earth Sciences</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0401 Atmospheric Sciences</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0402 Geochemistry</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0403 Geology</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0404 Geophysics</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0405 Oceanography</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0406 Physical Geography and Environmental Geoscience</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>0493 Other Earth Sciences</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>
ERA timeframe

• Trials in 2009 for two Clusters only
  – PCE submissions opened June and closed July 2009
  – Outcomes in November 2009
  – HCA submissions open and closes August 2009
  – Outcomes in December 2009

• Full ERA process expected in 2010 (will include PCE and HCA again)
2009 - Latest focus points for ERA

• Workshops on other six clusters and indigenous research.
• Development of esteem indicators
• Ranked refereed conference publications (tiered)
• Finalising the journal rankings lists for other Clusters – expert consultation
• Research Evaluation Committees for PCE and HCA being established
• Draft matrices
Overview of ERA Evaluation

**Key Documents**
- Submission close
- Validation
- Pool of items for peer review

**Submission Guidelines**
- Sort by unit of evaluation 4 & 2 - digit – volume threshold
- Agreed application of evaluation methodology

**Indicator Benchmark Methodology**
- Assignment to Research Evaluation Committee and Peer Reviewers

**Evaluation Guidelines**
- REC and Peer Reviewers
  - Evaluation
  - Prepare for meeting – (REC only)

**Overview of ERA Evaluation**

- Evaluation meeting
  - Finalise rating(s)/outcomes
  - CEO report

- CEO report to Minister on trial

- Report to the public on national outcomes and separate report to institutions on results
Evaluation

Outputs
Ranked Journals
Citation Analysis or Peer Review

Supporting Information
Volume and Activity – outputs and people
HERDC Research Income
Applied Indicators – Patents and Commercialisation income
2- digit background statement
The ERA “Dashboard”

• A series of quantitative profiles presented to a Research Evaluation Committee as proxies of quality for a Unit of Evaluation.

• Examples of the quantitative profiles are in the Evaluation Guidelines

• Where relevant – Peer Review – access to outputs via repositories or provided by institution to the ARC for the reviewer.
Ranked Journals

- The portal used to enter the domain of journal articles
- Only one of a number of indicators on the “Dashboard”
- It assists with the assignment of a research output to the appropriate discipline(s) and cluster
- Required for development of discipline-specific benchmarks for citation analysis
- Note discipline-specific practices
Peer Review

• Peer review will be used as an indicator for disciplines that do not have a sufficiently robust range of other indicators, eg HCA.

• Peer review is one “indicator” on the Dashboard

• Institutions select up to 20% of outputs from Units of Evaluation – Four and Two-digit Units

• REC Members will undertake expert review of Dashboard including peer review of a sufficient sample of research outputs.

• Peer Reviewers only evaluate research quality based sample of outputs and their reports go back to REC Members
Peer Review

- Sensitivities in evaluation, eg commercial, cultural
- Repository or hard copy outputs - access

- Article XXX – Repository Link
- Book XXX – Repository
- Book XXX – Hard copy to ARC
- Design - Repository
- Computer program - Repository
Esteem

- In 2008 we received advice on a number of proposed esteem measures for PCE and HCA
- In 2009 the ARC received advice on esteem measures for the other six clusters
- The Minister determined that esteem measures would not be included in 2009 but asked the ARC to conduct further work on esteem measures for 2010
- The ARC has undertaken further work and the proposed esteem measures will be included in the draft matrices for the eight clusters
Interdisciplinary Research

• ERA is a discipline-based evaluation
• Re-assignment of Two-digit and multi-disciplinary outputs
• Discipline Profile and its use
• Institutional tools (not part of evaluation)
Field of Research Re-Assignment

DIVISION 20 LANGUAGE, COMMUNICATION AND CULTURE

- 2001 Communication and Media Studies: 34
- 2002 Cultural Studies: 47
- 2003 Language Studies: 16
- 2004 Linguistics: 83
- 2005 Literary Studies: 46
- 2099 Other Language, Communication and Culture: 38

63 General Language, Communication and Culture articles to be re-assigned by the ARC
Discipline Profile and its use – 4-digit

Discipline FoR 2101

2101 - Archaeology
0607 - Plant Biology
1901 - Art History
0305 - Organic Chemistry
Institutional Tools

• Institutions may tag research outputs with two institutional codes and two research theme codes
• This will assist in recompiling data
• The tagging will not be used for ERA evaluation purposes
ARC – outcomes of trial

- institutional reports
- a national outcomes report
- After trial for PCE and HCA – review of process and outcomes
- Lessons learned will inform the full evaluation
Creative Arts issues

• Submission of creative works
• Considerations of research component of research outputs – the statement
• The ANZSRC codings – eg., 1904
• Selecting a variety of outputs for the 20%
• Practice-led research (eg., design)
• Trial – Banded Publishers – Curated Events
• Evaluation – peer review of creative works, and research income