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**MACQUARIE**  
University

# MACQUARIE UNIVERSITY RESEARCH FELLOWSHIPS SCHEME (MQRF) DISCIPLINE NORMS

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## Faculty of Arts

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### Discipline Norms for English

1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*
  - A monograph with an esteemed publisher (i.e., a university press, a respected commercial academic publisher such as Routledge, or else a book that is part of an established series) would be expected of an outstanding MQRF candidate (or at least a contract for a monograph.)
  - Invited book chapters are an indication of esteem but these are not subject to the same review process as a refereed journal article.
  - Refereed journal articles are most common.
2. *Norms for authorship (e.g., sole vs joint, order of authorship):*
  - Sole authorship is most common.
  - If a publication has been co-authored, authors' names are listed alphabetically. It should also be assumed that each author has contributed equally to the publication.
3. *Quality indicators and how to interpret them:*
  - Impact factors and citations typically are low in Humanities disciplines, and are therefore not the most effective indication of research dissemination.
  - Other indicators of impact are: positive reviews of monographs in peer-reviewed journals, invitations to contribute to edited collections, etc.
4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*
  - Expected output for a good MQRF candidate would be: 1-2 journal articles during PhD candidature, at least one per year post-PhD, and a monograph.
  - Expected output for an outstanding MQRF candidate would be 3-4 journal articles during PhD candidature, at least one per year post-PhD, and a monograph.
  - Current expectations for a Level A/Level B staff are one publication per year – but an outstanding MQRF candidate should exceed this.

*Provided by Victoria Flanagan (Arts, English), MQRF Panel Member, September 2013*

## Discipline Norms for Indigenous Studies

1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- The most common publications are journal articles and book chapters. Indigenous Studies is interdisciplinary and Indigenous researchers publish across a wide range of disciplines.
- Discipline-specific journals are considered important, especially those ranked at Q1.
- Open access is ideal and always peer reviewed.
- Monographs are ranked as highly esteemed, alongside sole and first-authored journal publications. It is not the norm that an Indigenous Studies scholar (Indigenous graduate) would have a monograph within 3 years of graduation.
- Indigenous scholars work from a position of relationality and often prioritise collaborative work and publications.
- Being lead editor for collections of both books and journals is highly valued, particularly if supporting the authorship of early career researchers and HDR students.
- Reports that meet the requirements associated with original research are often highly cited and considered important as they connect Indigenous researchers and research back to community and invested industries.
- Indigenous Studies includes practice research in the form of creative outputs. Depending on artform, published novels and collections of poetry, exhibitions, films, and longer-form performances, all with research justification and commissioned by a third party, are highly considered.

2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Sole authored or lead author is more esteemed.
- Lead author supporting ECRs and GRS is considered good practice.
- Order of authorship indicates who has led the research or whose idea the publication was.

3. *Quality indicators and how to interpret them:*

- Rankings are important; however, it is also significant for Indigenous scholars to publish in Indigenous focused publications along with Discipline specific. However, very few Indigenous journals are ranked Q1.
- In the Australian context Aboriginal Studies Press is the prominent publishing house for scholarly publications along with University Presses. International publishers are common and especially large publishing houses like Routledge, Palgrave MacMillan and University presses. Other Indigenous specific publishers like Magabala Books are held in high regard.
- Industry and community reports are also considered important and are often highly cited.

4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*

- Expected output for a MQRF or MUFIR - 1-2 journal articles or book chapters in good quality journals/books would be expected following completion of a PhD.

## Macquarie University Research Fellowships Scheme (MQRF) Discipline Norms

- Publication of a book or monograph within the first few years of completing a PhD would be seen as outstanding.
- A major public-facing practice-research work – in the form of creative work or report - that garners substantial review and citation.

*Provided by Bronwyn Carlson, Head of Department/Research Director, Indigenous Studies, December 2023*

## Discipline Norms for Ancient History

5. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- Monographs are better regarded than journal articles and book chapters.
- Journal articles in top journals are usually better regarded than book chapters, but book chapters in important collections are well regarded.
- A monograph/book is expected (e.g., for tenure) following the PhD.
- A recently graduated PhD may instead have a contract for a monograph/book, since some presses take a while to publish.
- A monograph/book would count for roughly 5 journal articles or chapters.
- Many Ancient History graduates will have conference presentations from national/ international conferences. Paper presentations at prestigious, selective conferences are highly regarded; an invited paper in a symposium is rare among junior academics and is a sign of impact and esteem.

6. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Sole authorship in Ancient History is the norm.
- If there is joint authorship, order of authors typically is alphabetical.
- If co-authors are not in alphabetical order it will usually signify that the first author has done more work.
- Large groups of authors are relatively rare in the discipline except in archaeological reports.

7. *Quality indicators and how to interpret them:*

- For monographs and books, the best guides to quality are the reputation of the publisher, the editors and the contents of a collection (e.g., UK and American University Presses are best regarded but this is not a hard and fast rule).
- There is no citation data or Impact Factor data available for journals in the discipline.
- Rely on expert advice (Referees and Independent Reviewers) to help judge the quality of books/monographs/journals.

8. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*

- Candidates should be publishing a book within three years post PhD, and should at least be trying to meet Level A research activity for B1 or C1 publications, which is 1 per year for a teaching/research academic.
- Outstanding would be a higher rate than this; good quality publications arising during the PhD (e.g., articles in highly regarded refereed journals), plus a monograph/book published or in press.

*Provided by Malcolm Choat (Arts, Ancient History), Former Chair, MQRF Panel, September 2013*

## Discipline Norms for Modern History

### 1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- Monographs with an esteemed publisher (i.e., a university press, a respected commercial academic publisher such as Routledge, or else a book that is part of an established series) are better regarded than journal articles and book chapters.
- C1 publications in top journals are usually better regarded than B1 publications, but book chapters in important collections are well regarded, especially when these are invited. C1 publications in new journals are esteemed if the editorial board are recognised experts in their field and if the journal is the only one in an emerging field, or it presents a new approach to an existing discipline.
- A monograph/book is expected (e.g., for tenure) following the PhD, but it is very rare for a Modern History graduate to produce a monograph within 3 years of graduation. A recently graduated PhD may instead have a contract for a monograph/book, since some presses take a while to publish.
- A monograph/book is equivalent to 5 journal articles or book chapters.
- Many Modern History graduates will have conference presentations from national/ international conferences. Paper presentations at prestigious, selective conferences are highly regarded; an invited paper in a symposium is rare among junior academics and is a sign of impact and esteem.

### 2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Sole authorship in Modern History is the norm.
- If there is joint authorship, order of authors typically is alphabetical.
- If co-authors are not in alphabetical order it will usually signify that the first author has done more work.
- Large groups of authors are very rare in the discipline unless the work is interdisciplinary in focus (e.g., written in collaboration with the sciences).

### 3. *Quality indicators and how to interpret them:*

- For monographs and books, the best guides to quality are the reputation of the publisher, the editors and the contents of a collection.
- There is no citation data or Impact Factor data available for journals in the discipline.
- Rely on expert advice (Referees and Independent Reviewers) to help judge the quality of books/monographs/journals.

### 4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*

- Expected output for a good MQRF candidate would be: at least two B1 or C1 publications during PhD candidature, at least one per year post-PhD, and a monograph in press or with contract issued.
- An outstanding MQRF candidate would exceed the above standard.

*Provided by Hsu-Ming Teo (Arts, Modern History), MQRF Panel Member, September 2013*



## Discipline Norms for Studies in Human Society (Anthropology, Human Geography, Sociology)

These norms are common to the disciplines of Anthropology, Human Geography and Sociology unless otherwise indicated below.

### 1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- Publication of book chapters and journal articles in scholarly national and international journals remain the principal outlet for scholarship and research. In Human Geography and Anthropology, book chapters are usually accorded the same status as journal articles although journal articles are more common. In Sociology, journal articles are considered to be higher status outputs than book chapters.
- While discipline-specific journals are often the preferred outlet, with emphasis on publication in high impact international journals and the major Australian disciplinary journals, it is common to publish either in interdisciplinary journals or in journals of other disciplines.
- Book publications, and less commonly monographs, are seen as a sign of research excellence.
- Other outputs include reports for government bodies and other agencies; invited contributions to research workshops or conferences (and the ensuing published record of proceedings); research contributions to specialist or popular atlases and encyclopaedias; and commentaries or short review articles in journals, newspapers and other media.
- Authors are often called on to tailor the output from their scholarship and research to a student audience, whether through University classes, textbooks, geographical education journals or professional development courses for geographical educators.

### 2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Single and joint authorship of publications are common. In Anthropology, single authorship is much more common than joint authorships. In Sociology, joint authorship is more common among quantitative sociologists and those doing policy based sociology than social theorists or qualitative researchers. In Human Geography and Anthropology papers jointly authored by PhD students and their supervisor/s are becoming increasingly common.
- Joint authorship order can be based on author contributions to the paper, it can be alphabetical or it can rotate between authors in collaborative teams. Candidates should expand on their contribution to joint publications.

### 3. *Quality indicators and how to interpret them:*

- The quality and reputation of the publisher is important in judging the quality of books and monographs.
- The quality and reputation of the editor/s and publisher is important in judging the quality of edited books and book chapters.
- Emphasis is on high impact journals. However, because much work in human society relates to issues specific to Australian society and Australian social policy, respected Australian journals are considered to be of similar status to international discipline-based ones.



- Rankings and impact factors help to judge the quality of journal articles; however, it is also important to take into account the audience that the author/s wish to reach – hence sometimes lower-ranking journals are chosen so that author/s' research reaches a certain audience, such as a community of research specialists – and this should be taken into account. Some anthropologists consider it crucial to publish some work in the language or languages of the region where the fieldwork is conducted, for ethical reasons as well as social benefits.
  - Other indicators of impact should be given equal weighting, including reviews, referee reports and invitations to contribute to special collections.
4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*
- We try to judge work based on quality rather than quantity although a base expectation would be 1 publication per year.
  - Publication of a book or monograph within the first few years of completing a PhD would be seen as outstanding.
  - 2-3 journal articles and/or book chapters in good quality journals/books would be expected following completion of a PhD. Anything beyond this in quantity or quality would be seen as outstanding. It would be expected that students who complete a PhD by publication would have 2-3 more publications than those who do a conventional PhD.
  - Quantitative Sociologists and those working in social policy tend to have a higher rate of publication output than social theorists and those who do qualitative research.
  - Completion of policy-oriented or applied studies with practical outcomes and/or demonstrable social impact from the research activity are valued.
  - Emphasis is on careful, high standard scholarship. This can be in the form of rapid multi- authored research outputs, or slower in-depth and more reflective, often single authored publications. For this reason a high number publications does not always equate to superior scholarly research profile.

*Provided by Sandie Suchet-Pearson (Human Geography) MQRF Panel with Amanda Wise (Sociology) and Greg Downey and Chris Lyttleton (Anthropology) August 2014*

## Discipline Norms for Built Environment and Design Urban and Regional Planning

1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- Refereed journal articles are the norm and most highly regarded.
- Chapters in edited collections are common. Most chapters are peer reviewed and deemed equivalent to journal papers.
- It is common for students to publish in refereed conference proceedings. Peer reviewed conference papers are regarded as good but a little below journal articles.
- Publication of monographs is less common and is usually limited to mid-career/senior academics. It would be rare for an ECR to have published a monograph. If the student does have a monograph, this is highly regarded.

2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Number of authors can range from sole authored to up to four authors. It is uncommon of there to be more than 4 authors.
- For ECRs a mixture of sole authored and co-authored (usually with PhD supervisor) would be expected.
- Authors are listed in the order of their contribution to the article
- Students are typically first author on PhD outputs with supervisor/collaborators as co- authors.

3. *Quality indicators and how to interpret them:*

- Journals generally have an impact factor (IF) ranging from 0.5 to 2.5. An IF of 2.5 or greater is identified as a very high-quality journal.
- Students in urban and regional planning publish in a range of journals, including Australian (particularly for domestic candidates) and international journals.
- At least one high quality international publication would be expected.

4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*

- Number of publications depends on whether the PhD was completed via dissertation or publication
- For students completing a dissertation 2- 3 refereed outputs would be considered adequate (most likely 2 journal papers/book chapters and 1 refereed conference paper)
- For students completing a PhD by publication at 4- 6 refereed outputs would be considered adequate (at least 4 journal/book chapters)
- Post-PhD at least one journal/book chapter per year would be expected for a teaching/research academic.
- These are minimum expectations and outstanding candidates will exceed these levels.

*Provided by Sandie Suchet-Pearson (MQRF Panel 2014) (Environment & Geography, Faculty of Science and Engineering) August 2014*

## Discipline Norms for Cultural Studies

1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- Monographs are ranked far more highly than journal articles or book chapters.
- Journal articles in key peer-reviewed journals are important but book chapters in prestigious edited collections (e.g., Sage, Routledge, Palgrave MacMillan and any key university press) are equally important because they provide evidence that the author was invited as an expert to contribute on a topic.
- A monograph is normally required to progress beyond a Lecturer Level B position. Recent PhD graduates are unlikely to have a published monograph but one would expect that they have a proposal and are in negotiation with a publisher.
- A monograph/book is equivalent to 5 journal articles or chapters.

2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Both sole and co-authorship are increasingly the norm in Cultural Studies. Co-authorship demonstrates a capacity to collaborate on research that is critical to secure funding in the contemporary environment. In the case of numerous co-authorships, however, it is important that the author has a number of publications where she/he is lead author.
- If there is joint authorship, the order of authors reflects the contribution the author made to the article. If authors have made equal contributions then the article or chapter will be ordered alphabetically.

3. *Quality indicators and how to interpret them:*

- For monographs and books, the best guides to quality are the reputation of the publisher, the editors and the contents of a collection (Key University presses are well regarded but by no means the only indicator of quality. There are well established commercial academic presses which apply a rigorous peer review process including Routledge, Sage and Palgrave MacMillan).
- There are now numerous tools for capturing quality impact factors in the Humanities including Scopus, Web of Science and Google Scholar for citation data. Each database will give different results. Measuring Impact Factor in the Humanities is still an emergent field but it is now normal for applicants for grants to give some indication of citation and impact.
- Expert advice (through referee reports and reviewers) to judge the quality of books/monographs/journals.

4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*

- Candidates should be publishing a book within two years post PhD, and should be publishing two articles a year post PhD.
- Outstanding would be: five good quality publications arising during the PhD (e.g., articles in highly regarded refereed journals/book chapters), plus a monograph/book published or in press.
- Outstanding would also include evidence of external grant funding (Category 1 and 2).

*Provided by Catharine Lumby (MQRF Panel) August 2014*

## Discipline Norms for Creative Works

### 1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- For a screen-research academic you would expect the research to predominantly have been produced in screen forms. There is a growing movement in media practice and creative arts disciplines that both challenges the primacy of text-based research outputs that are traditional to the academy, and appreciates the capacity for audio-visual works to communicate new knowledge. As David MacDougall (2011) notes “[a]udio-visual recording has evolved to become a means of exploring the full gamut of human social experience, including ideas, feelings, verbal and non-verbal expression, aesthetics, the role of the senses, and the formal and informal interactions of everyday life”<sup>1</sup>.
- You could expect the majority of a creative works researcher’s publications and research activity to be listed under the final category: ‘Other’.
- The Faculty of Arts Creative Works Sub-Committee (which reviews and verifies creative works for the purposes of the Faculty’s Research Active survey and for inclusion in ERA submissions) used the University’s criteria for assessing whether a creative work is a Major Creative Work (J1) or a Minor Creative Work (J2).
- J1s usually greater than 45 minutes for DVD/video/radio, greater than 30 minutes for musical recordings and performances, book-length for creative writing and poetry. (These are considered to be equivalent to an A1 monograph and it would be highly unusual for a researcher to be able to produce more than one J1 output in any 2-year period)
- J2s usually more than 10 minutes for DVD/video/radio programs, greater than 10 minutes for musical recordings and performances, short texts. (These are considered to be equivalent to a B1 or C1).

### 2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- For traditional publications:
  - Sole authorship is most common.
  - If a publication has been co-authored, authors’ names are listed alphabetically. It should also be assumed that each author has contributed equally to the publication.
  - Creative works are very often collaborative productions, especially in the screen production disciplines. The researcher should indicate their role in the production.

### 3. *Quality indicators and how to interpret them:*

- These may include, but are not limited to:
  - External funding (Australia Council, ArtsNSW, screen agencies, philanthropic sources)
  - Peer review curatorial or selection processes
  - Quality of publication outlet or presenting organisation (e.g. publisher, record label, broadcaster, distributor, festival, gallery)
  - Awards, citations and reviews
- As a broad principle, quality creative outputs will be able to demonstrate external validation that sits at arm’s length from the author. In some cases this validation

may continue for some years after the output is produced and is closely aligned to notions of research impact.

4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*

- Broadly speaking, a Level A (teaching and research), just post-PhD, in the Humanities and Creative Arts disciplines would be expected to be publishing an average of 1 x B1 or C1 publications per annum. "Outstanding" would be higher than this, and in most HCA disciplines there would be a monograph published or at least contracted.
- For creative works outputs, you should assume that a major creative work (J1) is equivalent to a monograph, and a minor creative work (J2) is equivalent to a B1 or C1.

<sup>1</sup> Reference: MacDougall, D. (2011) 'Anthropological filmmaking: an empirical art', in E. Margolis and L. Pauwels (eds), *Sage Handbook of Visual Research Methods*.

*Provided by Gill Ellis (Faculty Research Manager, Arts) with contributions from  
Department of Media Music Communication and Cultural Studies (Faculty of Arts)  
August 2014*

## Discipline Norms for Educational Studies

### 1. *Typical publications in your field and how are they viewed?*

- As a general rule, refereed journal articles are the norm and are most highly regarded. Edited books and chapters in edited books are also well regarded, especially those in high quality research publications by reputable publishers (e.g., Springer, Routledge, Open University Press). Research books or monographs are rare but are highly regarded.
- In some areas of Education (e.g. specialist education studies, child development, special education and health), refereed journal articles are the most highly regarded. Researchers in ICT and Mathematics, usually publish in combination of refereed journal articles and papers in high impact peer reviewed conference proceedings and these two types of publication can be considered equally. Researchers in areas of curriculum (other than ICT and Mathematics), leadership, policy and education systems generally have refereed journal articles and book chapters as their main publication outlets. Researchers in curriculum and policy areas may also give priority to publishing in Australian rather than international journals.
- Many education researchers will include research-based chapters in text or practitioner books in their publication strategy. As an applied research discipline, the practice of translating research findings for communication to a professional or student audience is a respected means of engagement. However, contributing multiple chapters in the same volume is less well regarded, especially if the publication is 'in house' (i.e. the editor is a member of the School of Education).

### 2. *Norms for Authorship*

- Most journal publications would be co-authored, and sole authorship is neither rare nor common. Sole authorship of book chapters is more common. Sole authorship should not be regarded as a sign of higher or lower quality.
- The position of the author generally indicates the relative contribution of each author, with the major contributor as first author.
- PhD students are generally the first author on any publication from their thesis. Supervisors are generally (but not always) co-authors.

### 3. *Quality indicators and how to interpret them*

- There is no clear metric to assess journal quality in Education. Not all education journals have impact factors, and some areas, such as special education and educational psychology have higher impact factors than others. If an impact factor exists,  $IF > 1$  is strong for Education journals. In some education areas, e.g., early childhood education, journals rarely have impact factors, so other quality indicators are used (see below).
- Scimago Journal Ratings are regarded as a general indication of quality, with Q1 and Q2 most desirable.
- A strategic journal choice for an education researcher will often include a mix of national and international journals. E.g., those who publish in locally relevant topics (e.g., educational policy and systems) may choose to publish in a National journal rather than a higher ranking International journal.
- As many journals are not captured by Scopus or Web of Science citation databases, Google Scholar is regarded as the best indicator of citation counts.

Citations in policies, government papers, texts, as well as research outputs are positive indicators of impact.

- Journals and impact in education have long lag times, with citations often not appearing for over two years after publication. As such, citations take some time to build for ECRs. Again, the sub-discipline needs to be considered here as some sub-disciplines build citations more quickly than others.
- Book and chapter quality can be judged by the publisher (e.g., Springer, Routledge, Open University Press), and the audience of the publication (i.e., academic; student; professional)

4. *A general guide to what is expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what “outstanding” might look like*

- Many educational researchers (e.g., those conducting field-based studies, multiple time points etc) employ time-intensive research methods. Research methods need to be considered when judging the quantity of publications post PhD.
- An “Outstanding” PhD output would be 4 or 5 peer reviewed publications, with at least one in a Q1 journal or high-quality edited book publisher, with a minimum of 2 accepted outputs 12 months post completion.
- Level A positions in education are rare. Level B ECR academics would be publishing 2 articles per year within two years of appointment, the majority being first author. Publication sources should be high quality / highly respected.
- ECRs are encouraged to apply for funding to establish their research careers, but opportunities will vary depending on the ECR’s university. It is rare for an education ECR to attract substantial external funding within 3 years of appointment.
- An “Outstanding” MQRF applicant would have:
  - at least 4 high quality publications from their PhD, and an average of two more per year since completion with a majority being first author.
  - A publication record of between 8 and 10 publications within three years of completion is an outstanding achievement.
  - Relative to opportunity, it would be expected that they have at least one successful grant application within 2 years of commencing their post PhD appointment.



## Discipline Norms for International Studies

The discipline of International Studies within the School of Social Sciences comprises the subsections of Chinese Studies, Croatian Studies, French and Francophone Studies, German Studies, Italian Studies, Japanese Studies, Modern Greek Studies, Polish Studies, Russian Studies and Spanish and Latin American Studies. Scholars in the discipline undertake research in a variety of fields including linguistics, literature studies as well as historical, socio-political and cultural studies. Therefore, International Studies cannot be seen as representing one discipline.

1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- The most common types of publications are journal articles and book chapters.
- Book chapters would appear with respected academic publishers, some of whom would not be as well known in the Australian context as others because publications would often be in languages other than English.
- Publishers with limited reputation in the Australian context (such as e.g. 'Lang') can be chosen as publication avenues because they publish series particularly pertinent to a specific research area, so publishers' reputation should be considered with that in mind. This holds true for the publication of monographs as well.

2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Monographs are occasionally co-authored, but sole authorship is most common.

3. *Quality indicators and how to interpret them:*

- Impact factors and citations are low in the fields represented in the Department and therefore are not considered an effective measurement of research dissemination.
- Impact is more typically evidenced through positive reviews and invitations to contribute to edited collections etc.

4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*

- Expected output for a good MQRF candidate at the time of completion of their PhD would be 1-2 journal articles/book chapters and a monograph underway.
- An outstanding candidate would exceed this and would have published 3-4 journals/book chapters at the time of completion of their PhD and at least one article for every year after completion, as well as having published a monograph or having it accepted for publication.

*Provided by Gill Ellis, Faculty Research Manager, Arts, with input from the Department of International Studies, September 2013*

## Discipline Norms for Law/Legal Studies

Given the primarily national nature of law, some areas do not lend themselves to an international audience; nevertheless, high quality work in these areas can have a major impact on law at a national level through informing judicial opinion, government policy, academic scholarship and professional practice. Other legal scholarship is inherently international and comparative in nature.

Given the interdisciplinary nature of Law, legal scholars may publish in journals devoted to other disciplines—such as History, Sociology, Economics, Philosophy or Medicine. These publications should be assessed in the same way, and accorded the same weight, as publications in legal journals. The market for legal monographs of mainly Australian relevance is small. It is also important to note that there is no comprehensive database for legal citations, comparable to those available in some other disciplines.

Finally, in Law, the presentation of scholarly material to a professional audience—for example, judges or legal practitioners—is an important vehicle for the dissemination of scholarly research. Such activities generally are indicative of the individual academic's high scholarly standing and reputation amongst the professional group.

### 1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- The most noteworthy would be A1, C1 and B1 publications, in that order. However, the listing of A1 comes with the caveat already mentioned that it can be difficult for some law scholars to secure publication of monographs if they are focused on Australian or state law. A scholar in the area of international law, for example, would be better positioned to be able to publish an A1 and I would have a greater expectation that they'd do so.
- On C1s, the ERA ranking of journals remains instructive albeit not definitive. To be accepted in a general law journal as opposed to a specialised law journal may be more prestigious (e.g. better to be in the Melbourne University Law Review than the Melbourne Journal of international Law), although there may be preeminent journals in a subdiscipline that are extremely well regarded (e.g. American Journal of Comparative Law). Generally, publications that are at least 20 pages (e.g. 8000 words long) are more impressive than the 4-5 page articles (e.g. 3000 words).
- For B1 publications, the relevant markers of quality would be the reputation of the editors, the standing of the publishing house (e.g. Cambridge University Press) and, sometimes, the purpose of the volume (e.g. a Handbook that is intended to be a definitive collection of a subdiscipline of law). There is mixed practice as to whether B1 chapters are separately peer reviewed outside the editorial team. The B1s can be a good indicator of research collaborations, networks and research leadership.

### 2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Traditionally, legal academics have written as solo authors. This has changed in recent years with the greater emphasis on collaborative work, as well as recognising mentoring relationships. There is no standard order of authorship; it may be alphabetical, by seniority, or by extent of contribution. It is good practice for someone to indicate the extent of their responsibility for any co-authored piece.

3. *Quality indicators and how to interpret them:*

- This is difficult to note in the abstract. Much will depend on the sub-discipline of law. Invitations to conferences, keynote addresses, recognition by the profession (e.g. invited consultancies; contributions to government publications, reports, meetings), judicial recognition (e.g. citations in judgments or other interactions with courts); requests to be involved in community engagement activities (e.g. talks to community groups, media interactions and interviews) could be examples.

4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*

- This would need to be assessed relative to opportunity. Someone teaching for the first time or being in practice would have less publications than someone in a more research-oriented position. An example of outstanding would be 3-5 C1 publications (length of 6000-8000 words) per year.

*Provided by Gill Ellis (Faculty Research Manager, Arts) with contributions from Therese MacDermott and Natalie Klein (Macquarie Law School, Faculty of Arts) August 2014*

## Discipline Norms for Philosophy and Applied Ethics

### 1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- In analytic philosophy broadly construed the standard means of publication is via refereed journal articles. It is not unusual for an early career researcher not to have a book. Monographs with leading academic presses (Oxford, Cambridge, MIT) are highly regarded. Wiley Blackwell is also a well- respected publisher. Book chapters in collections with prestigious presses are usually invited and a mark of esteem. The same criteria apply for Continental Philosophy. Other well-respected presses for Continental Philosophy, aside from Oxford and Cambridge, are American university presses, like Columbia University Press and Northwestern University Press, as well as presses publishing in other areas in the humanities, like Polity, Routledge and Verso. Some European publishers are also well- regarded, like Springer and De Gruyter.
- In Applied Ethics, the standard means of publication is via refereed journal, and these journals may draw from a variety of disciplines, including biomedical as well as philosophical. Books are unusual for ECRs. Book chapters in collections with prestigious presses are usually invited and a mark of esteem.

### 2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Most publications in philosophy are sole authored though joint authorship is not uncommon. Alphabetical ordering of authors indicates equal contributions by the authors, otherwise the first named author is the lead author. The same applies for Continental Philosophy.
- Publications in Applied Ethics may be sole or multi-authored. Authorship is usually in order of contribution.

### 3. *Quality indicators and how to interpret them:*

- Top general philosophy journals have extremely low acceptance rates, usually around 5%. A ranked journals would have acceptance rates of around 15%. There are a number of very highly regarded specialist journals in sub-disciplinary and cross disciplinary areas and these are often where good ECRs are publishing. The situation is similar for Applied Ethics and Continental Philosophy.
- Journal impact factors (where available) are lower than for the sciences since publications have long lead times and authors usually only cite sources that they directly discuss. Some applied ethics journals do have impact factors and other citation bibliometrics but generally these are low compared to biomedical journals (e.g. the majority are between 1 and 2)
- Google scholar is becoming the standard source of information on citation rates for philosophy. Young scholars will typically not have high citations because of long lead times so articles with citations in double figures indicate very strong impact.
- Any policy impact should be rated very highly, as this is difficult to achieve for ECRs and indicates research held in high esteem.

### 4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*

- In Analytic Philosophy 2-3 publications in good journals at PhD completion is above the norm. For an ECR 2 articles per year in good places is considered

## Macquarie University Research Fellowships Scheme (MQRF) Discipline Norms

excellent and anything above that is outstanding. Publications in prestigious journals will be regarded more highly than sheer number of publications. An outstanding candidate just out of a PhD might have 4-5 publications with 2-3 of those in top journals.

- In Applied Ethics: at 3 years post PhD a strong scholar might have 3-6 articles, weighted towards specialist applied ethics journals. Articles in journals of the target discipline (e.g. biomedicine, environment etc) should be highly regarded.
- In Continental Philosophy, 1-2 publications in good journals at the time of PhD completion is above the norm. 2 articles/chapters in good journals per year after PhD is excellent, anything above is outstanding.

*Provided by Jeanette Kennett (Philosophy) MQRF Panel August 2014*

## Discipline Norms for Security Studies & Criminology

The Department undertakes research in multiple disciplines including criminology, strategic/cyber/terrorism/intelligence studies and does not represent one discipline. Much of its research is interdisciplinary and transdisciplinary in nature, with outputs aimed towards societal impact and engagement as well as traditional metrics of academic success. The Department of Security Studies & Criminology values scholarly engagement with industry, government, and professional stakeholders does not represent one discipline.

### 1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- The most common publications are solo-authored monographs, single or co-authored journal articles, edited books, book chapters, and commissioned peer-reviewed research reports.
- Monographs with an esteemed publisher (i.e., a university press, a respected commercial academic publisher such as Routledge) are more highly regarded than journal articles or book chapters. Monographs published within a series are held in even higher esteem.
- A monograph/or a single author book is equivalent to 5 journal articles/book chapters.
- Presentations at prestigious, selective conferences are highly regarded; an invited paper in a symposium is rare for ECRs and is a sign of impact and esteem.
- In cyber/ intelligence/homeland security studies, presentations at prestigious, highly competitive conferences and conference proceedings publications are regarded as the highest impact in the field.
- Commissioned peer-reviewed research reports are viewed as equivalent to B1 research articles and demonstrate additional impact and esteem.

### 2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Sole authorship for monographs is most common. Co-authors are typically listed in alphabetical order. It is common to assume that the first author did more work, unless specified otherwise.
- Journal articles, chapters, books or abstracts, joint authorship in security studies is common. Again, author order is typically alphabetical, unless specified otherwise.
- In cyber/intelligence/homeland security studies, where co-authorship is most common, the first author typically signifies the lead author who has done most the most work.
- In cyber studies, the project supervisor is often listed as last author and is often the second most important position in the authorship list.

### 3. *Quality indicators and how to interpret them:*

- Impact factors and citations are low in the Department's sub-fields and therefore are not considered an effective measurement of research dissemination. Instead, publications in Q1/Q2 journals (according to SCIMAGO) are preferred.
- Scholarly impact is more typically evidenced through positive reviews and invitations to contribute to edited collections, conference participation, speaker invitations etc.

## Macquarie University Research Fellowships Scheme (MQRF) Discipline Norms

- Research awards are highly esteemed indicators of status and scholarly reputation.
- Securing competitive external grant funding is particularly rare for ECRs and is indicative of scholarly reputation.

### 4. *Metrics of applied impact and engagement*

- Research grants from category 2/3 streams, prestigious overseas commissions/foundations are highly regarded as equivalent to category 1 income.
- Commissioned peer-reviewed research reports and invitations to consult with industry stakeholders are each considered indicators of esteem and reputation.

### 5. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*

- A good MQRF candidate would have published 1-2 journal articles and/or book chapters during their PhD candidature, and 1 journal article a year after their graduation. They will have a monograph in press or accepted/recommended for publication with a respected press.
- An outstanding MQRF candidate meets the above and secured grant funding and research awards.

*Provided by Department of Security Studies and Criminology, July 2023*



## Macquarie Business School

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### Discipline Norms for Accounting

1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*
  - Journal articles in A\* /A (Australian Business Deans Council- ABDC journal list) and FT 50 are considered to be clearly more prestigious than book chapters.
  - Monographs and book chapters (by top ranked prestigious academic publishers) are highly regarded although journal articles in A\* /A (Australian Business Deans Council- ABDC journal list) are considered more prestigious.
  - Journal articles in top journals are usually much better regarded than book chapters, but book chapters in important collections in quality publishers are also regarded.
  - A monograph/book is not necessary (e.g., for tenure) following the PhD. Articles in quality journals is an expectation.
  - A recently graduated PhD may instead have an article acceptance, since some journals have a lead time of two to three years to publish.
  - Paper presentations at prestigious, international conferences are highly regarded; an invited paper in a symposium is rare among junior academics and is a sign of impact and esteem although not regarded as a research output.
2. *Norms for authorship (e.g., sole vs joint, order of authorship):*
  - Joint authorship in Accounting is the norm. However, while sole authorship is rare, it is an important indicator of scholarship in highly regarded journals and books/monographs.
  - If there is joint authorship, the order of authors typically is alphabetical.
  - If co-authors are not in alphabetical order it will usually signify that the first author has done more work and higher contribution.
  - Large groups of authors are not the norm as part of large international research projects.
3. *Quality indicators and how to interpret them:*
  - For monographs and books, the best guides to quality are the reputation of the publisher, the editors and the contents of a collection (e.g., The ERA publishers a list of accepted publishers).
  - While citation data or Impact Factor data is available for journals in the discipline these can be misleading it does point to impact.
  - Importantly expert advice peer review and assessment (Referees and Independent Reviewers) to help judge the quality of books/monographs/journals.
  - Staff should stay away from predatory and non-ranked journals which now account for nearly 50% of all journals in management, accounting and finance.
4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*
  - Candidates should at least be trying to meet Level A (ABDC journal list) and FT50 research activity for C1 publications, with at least 1 publication per year for a teaching/research academic workload. Research intensive positions are expected to have greater research activity/output (e.g. 2 publications for a Level B).

## Macquarie University Research Fellowships Scheme (MQRF) Discipline Norms

- Outstanding would be a higher rate than this; good quality publications arising during the PhD (e.g., articles in highly regarded refereed journals e.g. A on the ABDC journal list).

## Discipline Norms for Actuarial Studies and Business Analytics

### 1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- Journal articles in A\* /A (Australian Business Deans Council- ABDC journal list) are usually more prestigious than book chapters.
- A monograph/book is not necessary (e.g., for tenure) following the PhD. Articles in quality journals is an expectation.
- A recently graduated PhD may have article acceptances (but not yet publications), since some journals have a lead time of two to three years to publish.
- A monograph/book would be rather unusual for an Early Career Researcher, may count for roughly 5 journal articles or chapters, however, only if it is with a very high-quality publisher.
- Paper presentations at prestigious, international conferences are highly regarded; an invited paper in a symposium is rare among junior academics and is a sign of impact and esteem although not regarded as a research output.

### 2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Joint authorship in Actuarial Studies and Business Analytics is the norm. However, while sole authorship is rare, it is an important indicator of scholarship in highly regarded journals and books/monographs.
- If there is joint authorship, the order of authors will usually signify that the first author has contributed significantly more to the publication followed by other authors.
- Large groups of authors are uncommon but can be the norm as part of large international research projects.

### 3. *Quality indicators and how to interpret them:*

- For monographs and books, the best guides to quality are the reputation of the publisher, the editors, and the contents of a collection (e.g., UK and American University Presses are best regarded but this is not a fixed rule).
- Various indicators of journal quality can be used, such as impact factor, ABDC, FT50, etc.
- Importantly expert advice peer review and assessment (Referees and Independent Reviewers) to help judge the quality of books/monographs/journals.

### 4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*

- Candidates should at least try to meet Level A (ABDC journal list) research activity for C1 publications, with 1-2 publications per year for a teaching/research academic workload. Research intensive positions are expected to have potentially higher activity/output (2-3 publications per year).
- Outstanding would be a higher rate than this; superior quality publications arising during the PhD (e.g., articles in highly regarded refereed journals such as A/A\* on the ABDC journal list). Note that A\* articles stood out when ERA evaluations were being conducted and were especially valuable to MQBS. Such publications still help to build reputation, either directly if they are included on lists such as the FT 50 Journals list, or indirectly if they are in other highly regarded journals. Highly cited publications in Scopus-recognised journals (even ABDC B or C rated journals) will contribute directly to QS rankings.



## Discipline Norms for Economics / Finance

### 5. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- Journal articles in A\* /A (Australian Business Deans Council- ABDC journal list) are usually more prestigious than book chapters.
- A monograph/book is not necessary (e.g., for tenure) following the PhD. Articles in quality journals is an expectation.
- A recently graduated PhD may have article acceptances (but not yet publications) , since some journals have a lead time of two to three years to publish.
- A monograph/book would be rather unusual for an Early Career Researcher, may count for roughly 5 journal articles or chapters, however, only if it is with a very high-quality publisher.
- Paper presentations at prestigious, international conferences are highly regarded; an invited paper in a symposium is rare among junior academics and is a sign of impact and esteem although not regarded as a research output.

### 6. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Joint authorship in Economics and Finance is the norm. However while sole authorship is rare, it is an important indicator of scholarship in highly regarded journals and books/monographs.
- If there is joint authorship, the order of authors typically is alphabetical.
- If co-authors are not in alphabetical order it will usually signify that the first author has contributed significantly more to the publication.
- Large groups of authors are uncommon, but can be the norm as part of large international research projects.

### 7. *Quality indicators and how to interpret them:*

- For monographs and books, the best guides to quality are the reputation of the publisher, the editors, and the contents of a collection (e.g., UK and American University Presses are best regarded but this is not a fixed rule).
- While citation data or Impact Factor data is available for journals in the discipline these can be misleading and the ABDC journal list is normally regarded as the best sign of quality. However, the ABCD list has several contentious A vs B assignments. Its A\* vs A assignments are more reliable. Moreover, well-cited publications in B journals benefit MQBS more than uncited A articles.
- Importantly expert advice peer review and assessment (Referees and Independent Reviewers) to help judge the quality of books/monographs/journals.

### 8. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*

- Candidates should at least try to meet Level A (ABDC journal list) research activity for C1 publications, with 1-2 publications per year for a teaching/research academic workload. Research intensive positions are expected to have potentially higher activity/output (2-3 publications per year).
- Outstanding would be a higher rate than this; superior quality publications arising during the PhD (e.g., articles in highly regarded refereed journals such as A/A\* on the ABDC journal list). Note that A\* articles stood out when ERA evaluations were being conducted and were especially valuable to MQBS. Such publications still help to build reputation, either directly if they are included on

lists such as the FT 50 Journals list, or indirectly if they are in other highly regarded journals. Highly cited publications in Scopus-recognised journals (even ABDC B or C rated journals) will contribute directly to QS rankings.

## Discipline Norms for Management

### 1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- Monographs and book chapters are reasonably regarded although journal articles in A\* /A (Australian Business Deans Council- ABDC journal list) are considered much more prestigious.
- Journal articles in top journals are usually much better regarded than book chapters, but book chapters in very important collections in top quality publishers are well regarded.
- A monograph/book is not necessary (e.g., for tenure) following the PhD. Articles in quality journals is an expectation.
- A recently graduated PhD may instead have an article acceptance, since some journals have a lead time of two to three years to publish.
- Paper presentations at elite research universities and institutions are prestigious, the top 3 international conferences are highly regarded; an invited paper in a symposium is not regarded as a research output.

### 2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Joint authorship in Management/Marketing is the norm. However while sole authorship is rare, it is an important indicator of scholarship in highly regarded journals and books/monographs.
- If there is joint authorship, order of authors signifies the order of contribution, i.e. that the first author has done more work. Authorship is very rarely ordered alphabetically.
- Large groups of authors are common only in large international collaborative research projects.

### 3. *Quality indicators and how to interpret them:*

- For monographs and books, the best guides to quality are the reputation of the publisher, the editors and the contents of a collection (e.g., UK and American University Presses are best regarded but this is not a hard and fast rule).
- Various indicators of journal quality can be used, such as impact factor, ABDC, FT50, etc.
- Importantly expert advice peer review and assessment (Referees and Independent Reviewers) to help judge the quality of books/monographs/journals.

### 4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*

- Candidates should at least be trying to meet Level A (ABDC journal list) research activity for C1 publications, with 1.5 publications per year for a teaching/research academic workload. Research intensive positions are expected have greater research activity/output (e.g. 2 publications per year for Level B).
- Outstanding would be a higher rate than this; good quality publications arising during the PhD (e.g., articles in highly regarded refereed journals e.g. A\* on the ABDC journal list - top 4-5 per cent of journals), or a monograph/book published or in press with a prestigious publisher.



## Discipline Norms for Marketing

1. Typical publications in your field/discipline and how they are viewed (e.g., book chapters):

- Monographs and book chapters are reasonably regarded although journal articles in A\* /A (Australian Business Deans Council- ABDC journal list) are considered much more prestigious.
- Journal articles in top journals are usually much better regarded than book chapters, but book chapters in very important collections in top quality publishers are well regarded.
- A monograph/book is not necessary (e.g., for tenure) following the PhD. Articles in quality journals is an expectation.
- A recently graduated PhD may instead have an article acceptance, since some journals have a lead time of two to three years to publish.
- Paper presentations at elite research universities and institutions are prestigious, the top 3 international conferences are highly regarded; an invited paper in a symposium is not regarded as a research output.

2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Joint authorship in Management/Marketing is the norm. However while sole authorship is rare, it is an important indicator of scholarship in highly regarded journals and books/monographs.
- If there is joint authorship, order of authors
- signify the order of contribution, i.e. that the first author has done more work. Authorship is very rarely ordered alphabetically.
- Large groups of authors are common only in large international collaborative research projects.

5. *Quality indicators and how to interpret them:*

- For monographs and books, the best guides to quality are the reputation of the publisher, the editors and the contents of a collection (e.g., UK and American University Presses are best regarded but this is not a hard and fast rule).
- Various indicators of journal quality can be used, such as impact factor, ABDC, FT50, etc
- Importantly expert advice peer review and assessment (Referees and Independent Reviewers) to help judge the quality of books/monographs/journals.

6. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*

- Candidates should at least be trying to meet Level A (ABDC journal list) research activity for C1 publications, with 1.5 publications per year for a teaching/research academic workload. Research intensive positions are expected have greater research activity/output (e.g. 2 publications per year for Level B).

Outstanding would be a higher rate than this; good quality publications arising during the PhD (e.g., articles in highly regarded refereed journals eg A\* on the ABDC journal list - top 4-5 per cent of journals), or a monograph/book published or in press with a prestigious publisher.

## Faculty of Medicine, Health and Human Sciences

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### Discipline Norms for Public Health and Health Sciences Research (Australian Institute of Health Innovation)

1. *Typical publications in your field/discipline and how they are viewed:*

- Articles in international peer-reviewed journals are the usual approach and tend to be most highly regarded.
- Review articles and book chapter publications are often only by invitation, and so are less likely for ECRs, unless as co-authors or first author on a review invited from supervisor, however, if sole or senior author this would indicate early recognition of specific skills and/or discipline knowledge by an ECR.
- Oral or poster presentations at top international conferences are well regarded. Outputs from such presentations vary. Occasionally a full article may appear in conference proceedings or a special issue of a journal, but it is far more likely to be a published abstract (E3 publication) that has been reviewed by an editorial committee and accepted for presentation. Invited presentations at a conference, in a symposia or at workshops, or being invited to give seminar presentations are not so common for ECRs, and indicate high impact and esteem.

2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Within the field, collaborative research is the disciplinary norm, so single-author publications are rare.
- It is the disciplinary norm for the first author on the published article to be the individual who conducted the majority of the research, interpreted the results and drafted the manuscript. The last author is recognised as the person who has led the research in conception and planning and in interpreting the results and contributing to writing the manuscript. Thus, first and last authorship on a paper are both considered major authorship contributions.
- The remaining authors are listed in descending order of their contribution, with the exception of the second last author who may be a major contributing senior author.
- The authorship protocol for a conference abstract is as for a journal article.

3. *Quality indicators and how to interpret them:*

- For journal articles, metrics that may be taken to provide some estimate of quality and/or impact include journal impact factors (IFs), quartile rankings specific to the field and citations to the paper.
- Web of Science (Journal Citation Reports) and Scientific Journal Rankings (SJR) provide journal quartile rankings based upon specialist disciplines, and these serve as a good indicator of the relative quality of specialist journals.
- For journals, generally IF > 3 is outstanding. For example, JAMIA is AMIA's premier peer-reviewed journal for biomedical and health informatics and has an IF of 3.7.
- Citation rates take several years to become a meaningful metric, especially for ECRs.
- Any broad-audience journal publication (such as Nature/Science/PNAS) is exceptional, but these tend to be uncommon (particularly first author).

## Macquarie University Research Fellowships Scheme (MQRF) Discipline Norms

- h-index can vary markedly for ECRs within three years of PhD. As a baseline most ECR researchers should have an h-index that equals or exceeds time since PhD (i.e. an h-index of at least 1).
4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*
- Consistent with successful recipients of NHMRC Early Career Fellowships, an outstanding MQRF applicant at two to three years since PhD would typically have:
    - 10–15 publications, with approximately half of these as first author, and a number of them in the mid-to-top tier of the specialist field.
    - Presented at several national and international conferences.
    - Been a reviewer for research articles in well regarded journals.
    - Some form of research grant funding as first investigator – typically smaller grants – and/or perhaps a competitive fellowship. A role (typically as a co-investigator) on larger scale Category 1 grant is rare at this stage, but if present indicates high-quality contribution.
    - Some early form of peer recognition such as ECR prizes or awards.

*Based on an initial document by Professor Jacqueline Phillips, and with input from Associate Professor Farah Magrabi and reviewed by Professor Andrew Georgiou, May 2018; confirmed by Professors Enrico Coiera and Jeffrey Braithwaite, November 2023.*

## Discipline Norms for Biomedical Sciences & Clinical Medicine

### 1. *Typical publications in your field/discipline and how they are viewed:*

- Articles in international peer-reviewed journals are the norm and are most highly regarded.
- In general, Journals should be indexed by PubMed, unless very recently published.
- Review articles and book chapter publications are often only by invitation, and so are less likely for ECRs, unless as co-authors or first author on a review invited from supervisor, however, if sole or senior author this would indicate early recognition of specific skills and/or discipline knowledge by an ECR.
- Oral or poster presentations at top international conferences are well regarded. Outputs from such presentations vary. Occasionally a full article may appear in conference proceedings or a special issue of a journal, but it is far more likely to be a published abstract (E3 publication) that has been reviewed by an editorial committee and accepted for presentation. However, typically international Biomedical meetings such as Neuroscience (SFN) or Experimental Biology do not peer review abstracts, but attendance is usually a sign of quality work. Full refereed conference papers (E1 publications) are common in biomedical engineering, which does place a lot of emphasis on conference publications. Invited presentations at national and international conferences, symposia or at workshops, or being invited to give seminar presentations are not so common for ECRs, and indicate high impact and esteem.

### 2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Within the field, collaborative research is the disciplinary norm, so single-author publications are rare.
- It is the disciplinary norm for the first author on the published article to be the individual who conducted the majority of the research, interpreted the results and drafted the manuscript. The last author is often the corresponding author and is recognised as the person who has led the research in conception and planning and in interpreting the results and contributing to writing the manuscript. Thus, first and last authorship on a paper are both considered major authorship contributions.
- The remaining authors are listed in descending order of their contribution, with the exception of the second last author who may be a major contributing senior author.
- On occasions, the first and second listed authors are noted to have ‘contributed equally to the work’.
- The ‘Corresponding Author’ may be the first author, indicating an individual who both conceived of and co-ordinated the study and undertook responsibility for submission of the manuscript.
- The authorship protocol for a conference abstract is as for a journal article.

### 3. *Quality indicators and how to interpret them:*

- For journal articles, metrics that may be taken to provide some estimate of quality and/or impact include journal impact factors (IFs), quartile rankings specific to the field and citations to the paper.

- Web of Science (Journal Citation Reports) and Scientific Journal Rankings (SJR) provide journal quartile rankings based upon specialist disciplines, and these serve as a good indicator of the relative quality of specialist journals.
  - For journals, generally IF > 10 is outstanding, IF > 5 is excellent, IF > 2 is good; however, in some disciplines, top- quartile journals (Q1) may have IF of 4–5 but may be considered primary target journals for that area, and hence quartile rankings are an important consideration. Examples of these areas include Pharmacology, Hypertension, Biochemistry, Physiology and Clinical Neuroscience.
  - Citation rates vary by sub-discipline – biomedical engineering tends to be particularly low, being more akin to engineering than medicine – and take several years to become a meaningful metric, especially for ECRs. However, a substantial citation rate indicates work which has engaged the Discipline.
  - Any broad-audience journal publication (such as Nature/Science/PNAS/NEJM/Lancet/BMJ/AJM) is exceptional, but these tend to be uncommon (particularly first author) and will typically have a very long list of authors.
  - h-index can vary markedly for ECRs within three years of PhD. As a baseline most ECR biomedical researchers should have an h-index that equals or exceeds time since PhD (i.e. an h-index of at least 1).
4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*
- Consistent with successful recipients of NHMRC Early Career Fellowships, an outstanding MQRF applicant at two to three years since PhD would typically have:
    - A career total of 10–15 publications, with approximately half of these as first author, and a number of them in the mid-to-top tier of the specialist field.
    - Presented at several national and international conferences.
    - Could have undertaken review of research articles in well regarded journals.
    - Some form of research grant funding as first investigator – typically smaller grants from internal schemes and/or perhaps a competitive fellowship. A role (typically as a co-investigator) on larger scale Category 1 grant is rare at this stage, but if present indicates high-quality contribution.
    - May have received some early form of peer recognition such as PhD or ECR prizes or awards including travel awards, poster or oral prize arising from conference presentation or Commendation such as Vice Chancellors commendation based on PhD work. Having such recognition illustrates something of the quality of the candidate. However, the absence of such prizes or awards should not be regarded adversely, as it may simply reflect a lack of opportunity.

*Developed Professors Jacqueline Phillips, Roger Chung, Mark Connor and Bernard Champion, July 2017*

## Discipline Norms for Chiropractic

### 1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- Articles in international peer-reviewed journals are the most highly regarded publications in this field.
- Book chapters are also highly regarded and are often by invitation. If sole or senior author, this would indicate early recognition of specific skills and/or discipline knowledge.
- Oral or poster presentations at international conferences are well regarded. Outputs from such presentations vary. Occasionally a full article may appear in conference proceedings or a special issue of a journal, but it is far more likely to be a published abstract (E3 publication) that has been reviewed by an editorial committee and accepted for presentation. However, full refereed conference papers (E1 publications) do occur occasionally. Invited presentations at a conference, symposia or workshop or being invited to give seminar presentations are not so common for early career researchers (ECRs) and indicate high impact and esteem.

### 2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Collaborative research is the disciplinary norm. Single-author publications are not common.
- Part-time HDR candidates are common, therefore a pro-rata calculation of research output should be included in any assessment of research productivity.
- The first author on a published article is usually the individual who has conducted most of the research, interpreted the results and drafted the manuscript. The last author is often the person who has led the research in conception and planning and in interpreting the results and contributing to writing the manuscript. Thus, first and last authorship on a paper are both considered major authorship contributions.
- The remaining authors are listed in descending order of their contribution to the manuscript, with the exception of the second author who may be a major contributing senior author or second PhD supervisor.
- The authorship protocol for a conference abstract is as for a journal article.

### 3. *Quality indicators and how to interpret them:*

- For journal articles, metrics that may be taken to provide some estimate of quality and/or impact include journal impact factors (IFs), quartile rankings specific to the field, field weighted citation impact, and citations to the paper.
- For journals, generally IF > 2 is good, IF > 5 is outstanding. For example, PAIN is one of the leading journals in the field and has an IF of 7.4 (2022).
- Any broad-audience medical journal publication (e.g. JAMA, BMJ, The Lancet) is exceptional, but these tend to be uncommon (particularly as first author).
- Citation rates take several years to become a meaningful metric, especially for ECRs.
- Web of Science (Journal Citation Reports), Scientific Journal Rankings (SJR) and Scimago Journal & Country Rank provide journal quartile rankings based on specialist disciplines, and these serve as a good indicator of the relative quality of specialist journals.

## Macquarie University Research Fellowships Scheme (MQRF) Discipline Norms

- h-index can vary markedly for researchers in this field and especially for ECRs within five years of gaining a PhD. As a guide, most ECR researchers should have an h-index that equals or exceeds time since PhD full time equivalent.
4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what “outstanding” might look like:*
- Consistent with successful recipients of NHMRC Investigator Grants (Emerging Leadership Level 1 (EL1)), an outstanding MQRF applicant at two to three years since PhD would typically have:
    - 10–15 publications, with approximately half of these as first author, and several of them in the mid-to-top tier of their field.
    - Presented at several national and international conferences.
    - Been a reviewer for research articles in peer reviewed journals with IFs.
    - Some form of research grant funding as first investigator – typically smaller grants – and/or perhaps a competitive fellowship. A role (typically as a co-investigator) on larger scale Category 1 grant is rare at this stage, but if present, indicates high-quality contribution.
    - Some early form of peer recognition such as ECR prizes or awards.

*Provided by Prof Simon French (Director of Research, Department of Chiropractic) with input from Dr Michael Swain (Director of Research Training, Department of Chiropractic), November 2023*



## Discipline Norms for Linguistics

### 1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- In some areas of Linguistics (e.g., language sciences) refereed journal articles are the norm and most highly regarded due to their more stringent peer-review process.
- Book chapters are equally common in other areas (e.g., systemic functional linguistics, applied linguistics), and can be regarded equally highly depending on the status of the editor/publisher. Chapters appearing in more “in-house” publications (e.g., Macquarie staff members as editors) may be less highly valued than chapters in other volumes.
- Authored books/monographs are rare even among more senior academics, while edited books are more common.
- Many Linguistics graduates will have conference presentations from national and/or international conferences.
- Paper (more so than poster) presentations at prestigious, selective conferences are highly regarded. Invited papers are rare among junior academics and are a sign of impact and esteem.
- Full written refereed conference papers are in general less highly regarded than other peer-reviewed outputs in Linguistics, though could be rated highly depending on the quality of the conference and stringency of the acceptance criteria.

### 2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Sole authorship in Linguistics is less common in areas such as language sciences, but is seen more often in some areas of applied linguistics. If a sole-authored paper appears in a high impact journal, it should be highly rated.
- Authorship typically is joint (especially in areas such as language sciences), with order of authorship representing the degree of contribution to the research (no special meaning is attached to the position of last author).
- Publications with more than five or six authors are relatively rare in Linguistics, with the exception of more clinical areas.
- PhD students typically are first author on their PhD outputs, and often (but don’t always) include their supervisor(s) as co-authors.

### 3. *Quality indicators and how to interpret them:*

- For journal articles, quality measures include journal impact factors (JIFs) and/or journal rankings. A JIF > 1 is strong in Linguistics, with fewer than 30% of journals (49 out of 172) having JIFs at or above this level. According to ISI rankings, the top journal in the discipline is “Journal of Memory and Language” with a JIF of 4.237; just 6 journals (out of 172) have JIFs > 2; and just 19 journals have JIFs > 1.5. The median JIF = 0.549.
- The quality of individual C1 journal articles can sometimes be assessed via citation rates (e.g., in areas such as language sciences), but in more applied areas, citation rates are not as relevant. When referring to citation rates, Google Scholar is more relevant than Scopus or Web of Science due to its broader coverage of relevant published resources. Media attention or a demonstrated influence on, for example, teaching practice, would be rated highly.

## Macquarie University Research Fellowships Scheme (MQRF) Discipline Norms

- Linguistics academics generally publish in specialist journals that target specific areas of Linguistics (e.g., speech, psycholinguistics, sociolinguistics, applied linguistics, etc.), or journals intended for specific, applied audiences (e.g., clinicians, teachers). Especially in applied and systemic functional linguistics, papers may also appear in “out of area” journals (e.g., a discourse analytic study of accounting interactions may appear in an accounting journal). All outputs are valued.
4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*
- In Linguistics, academic staff members are expected to publish a minimum of 2 peer-reviewed book chapters or journal articles per year for their 40% research allocation.
  - An outstanding MQRF applicant would have publications during the PhD period (approximately 3), and then 2 or more B1 or C1 publications/year since PhD. A good proportion of these would be first author (e.g., from the PhD). National and international conference papers also would be expected.
  - Publication of a book or monograph within the first few years of completing a PhD would be seen as outstanding.
  - Note, however, that research involving longitudinal data collection; that is, data collected at multiple time points over long periods (e.g., from clinical groups or from children), will result in fewer publications and should be taken into account.

*Provided by Linda Cupples (Linguistics), June 2016, with updates from Ingrid Piller (Linguistics), November 2023*

## Discipline Norms for Psychology and Cognitive Science

### 1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- Refereed journal articles are the norm and most highly regarded. Refereed conference proceedings are less common, except for interdisciplinary work where the referred conference proceedings are the norm for the other disciplines (see below). Authored books/monographs are rare even among more senior academics. Edited books and especially book chapters in edited volumes are somewhat common, especially for more senior academics.
- Journal articles are considered more prestigious than book chapters (which although often invited don't tend to have the same review process), but an invited chapter in an edited volume published by a good publisher (e.g., Oxford University Press) and edited by leaders in the field is a sign of impact and esteem.
- Full written (e.g., 6- to 12-page) refereed conference papers are rare in Psychology but are becoming more common in the Cognitive Sciences and can be the norm for some interdisciplinary research (e.g., particularly that involving Computer Scientists). In some instances, these refereed conference papers can be more selective than standard journals and should be given the same weight as journal articles. In Australia the CORE peak body maintains a ranking of conferences proceeding. The ranking should be used as a guide only, but those conferences ranked A or A\* do tend to be more prestigious than those ranked B or C:  
<http://portal.core.edu.au/conf-ranks>
- In some sub-disciplines (e.g., clinical psychology, cognitive neurosciences, applied and sport psychology), junior academics may have a record of published abstracts for conference presentations. This means that a particular conference routinely publishes the full set of abstracts and may provide additional exposure. Such abstracts (and the accompanying conference presentation) might be weighted just a little higher than a conference paper/poster.
- Many Psychology/Cognitive Science graduates will have national/international conference presentations.
- Paper (more so than poster) presentations at prestigious, selective conferences are highly regarded; an invited paper in a symposium is rare among junior academics and a significant sign of impact and esteem (especially if the symposium is not chaired by the PhD supervisor).
- At some very large, peer reviewed conferences, junior academics often are only permitted to present posters (e.g., Psychonomics). So, posters in these cases should not be given less weight than papers when these are the only avenues of presentation at these meetings.

### 2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Sole authorship in Psychology/Cognitive Science is relatively rare and should be rated highly (especially in a high-impact journal).
- Authorship typically is joint, however the first author and last author are typically the project leads, with other authors listed in either order of contribution or seniority (junior to senior).
- In general, the expectation is that the final author is usually the team leader or student supervisor and has made as much contribution to the work as the first and second authors. For more recent papers, the contribution of each author is

typically detailed in the paper. The authors listed as corresponding authors is also an indication of the project leads.

- PhD students typically are first author on their PhD outputs with their supervisor/s as co-authors.
- Very large groups of authors can occur, particular for clinical studies and interdisciplinary work. Most publications will have between 2 and 5 authors.

3. *Quality indicators and how to interpret them:*

- For journal articles, quality measures include journal impact factors (IFs) and/or journal rankings. An IF > 2 is very strong in Psychology/Cognitive Science and even the best journals in the field rarely have IFs > 10 (only 5 of 557 Psychology journals have IFs > 10; the median is < 1.5). Where a Cognitive Science graduate publishes in neuroscience journals, expect IFs to be routinely higher.
- In Australia the CORE peak body maintains a ranking of conferences proceeding. The ranking should be used as a guide only, but those conferences ranked A or A\* do tend to be more prestigious than those ranked B or C:  
<http://portal.core.edu.au/conf-ranks>
- The quality of individual articles can be determined from citation rates (and relatedly by H-index) but citation rates are determined by the size of the sub-disciplines (e.g., citation rates are much higher in neuroscience than autobiographical memory because neuroscience is a huge sub-field). An additional, often more relevant measure of impact is who is citing the work and/or who has adopted the methods.
- Psychology/Cognitive Science academics publish in general journals that target broad academic audiences, specialist journals that target specific parts of Psychology/Cognitive Science, or journals intended for specific, applied audiences (e.g., clinicians, teachers). All outputs are valued.
- ERA rankings mostly were agreed on in the discipline.

4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*

- A recent discipline profile for promotion of research-intensive staff in SoPS included the following publishing expectations: Level A, 2 C1 publications/year is "very satisfactory"; Level B, 3 C1 publications/year is "very satisfactory"; Level C, 3 C1 publications/year is "very satisfactory"; Level D, 4 C1 publications/year with publications in particularly high prestige journals becoming apparent.
- An analysis of publication rates of teaching/research academics in Psychology at Group of Eight Universities indicated that the average publication rate across ALL LEVELS was 1 to 2 C1 publications/year. Publishing 2 C1 publications/year would place a candidate above the 90 percentile of Level B academics surveyed by McNally (Level B academics published on average 1.5 papers/year).
- Current minimum standards communicated for PDR purposes at MQ specify > 2 CI publications/year for Level A and Level B academics.
- So truly outstanding for the purposes of the MQRF would be publications above (or perhaps double) the rate of a research intensive Level A or teaching/research Level B (i.e., publications during the PhD period then 2-4 C1 publications/year since PhD). A good proportion of these would be first author (e.g., from the PhD)

and perhaps one or two in a high-quality journal. You also would expect to see national and international conference papers.

- Note, however, that research that involves longitudinal data collection – that is, data collected at multiple time points over long periods (e.g., from clinical groups or from children) – will result in fewer publications and should be taken into account.

*Provided by Amanda Barnier (Human Sciences, Cognitive Science) June 2016, updated by Michael Richardson (SoPS) November 2023.*

## Faculty of Science and Engineering

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### Discipline Norms for Computing

#### 1. *Typical publications in your field/discipline and how they are viewed:*

- Conference articles are more common than journal articles, and in fact some of the very best conferences are typically harder to have a paper accepted in than journals. The best conferences are typified by the quality of the conference steering committee.
- Journal articles take much longer to appear than conference papers (up to two years). Some are extended from previously published conference publications with new material to give a deeper account of the research.
- Books/monographs, book chapters and full conference papers accumulate with seniority (and are likely to be rare for ECRs – especially books).
- Journal articles are generally considered more prestigious than book chapters, but invited chapters in edited volumes from a quality publishing house (e.g., Oxford, Cambridge, Academic Press, Wiley etc.) and edited by leaders in the field indicates impact and esteem.
- HDR graduates should have conference presentations from national/international conferences. Paper or poster presentations at prestigious international are highly regarded; invited papers in symposia are rare for ECRs and indicates high impact and esteem.

#### 2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Sole authorship is rare, but one to several sole-authored papers is a sign of independence and initiative and rates highly.
- There is a range of conventions for listing authors in computing papers. Some authors always list authors alphabetically, some with the order of the contribution, and some follow other disciplines' conventions. The order of listed authors as the candidates might reflect time spent in different groups following a different convention.

#### 3. *Quality indicators and how to interpret them:*

- In Australia the CORE peak body maintains a ranking of conferences. The ranking should be used as a guide only, but those conferences ranked A or A\* do tend to be more prestigious than those ranked B or C: <http://portal.core.edu.au/conf-ranks/>
- CORE Journal ranking has stopped in 2021.
- Some conferences are local/national and ECRs who have submitted to these venues are indicating that they are participating in and supporting activity in their vicinity. It would not be impressive however if the list of papers only consists of local venues.
- For journal articles, quality measures include impact factors (IFs) and/or old rankings (e.g. ERA 2010 or CORE before 2021). There is a range of styles for journals depending on the discipline. In some theoretical fields of research, articles can be up to 40+ pages and so the publication rates and citations in those fields can be generally lower than in other fields where contributions rely less on theoretical developments.

## Macquarie University Research Fellowships Scheme (MQRF) Discipline Norms

- Nature/Science articles are generally not relevant in Computing.
  - Software “works” (such as published game titles or significant open source software) are important quality indicators, and can be equivalent to a book or book chapter, depending on scale.
  - Citation rates vary by discipline and field of research and take several years to become a meaningful metric. Google scholar is usual for citing publications.
  - H-index is difficult to gauge in ECR cases.
4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications)*
- MQ discipline profile for 40:40:20 (Research/Teaching/Admin) academics in Computing suggests the following as expectations (Note that these guidelines are for 40% research active academics, and assume that more senior ranked academics have access to funding which translates to outputs):
  - Level A, 1 refereed conference/journal papers/year;
  - Level B, 1–2 refereed conference/journal papers/year;
  - Level C, 2–3 refereed conference/journal/book chapters per year;
  - Level D, 3–4 refereed conference/journal/book chapters per year.
5. *An “outstanding” MQRF applicant:*
- At least 3 A/A\* (or similar quality) publications (depending on year since PhD graduation).
  - Potentially also:
  - Several national and international conference presentations.
  - Evidence of peer esteem in the form of prizes, scholarships, invited book chapters;
  - Evidence of initiative and success with small research grants (<1–5K), including travel grants, student awards, research grants etc.;
  - Evidence of leadership potential by organising a workshop attached to an international conference;
  - DECRA (or equivalent) application in the works.
6. *Discipline Norms across fields of research in Computing*
- Discipline norms can vary widely across the fields of research in computing. In some subfields (e.g., those which are essentially branches of mathematics) the publication rates can be as low as 1 or 2 substantial papers per year, even for very senior researchers.

*Provided by Irina Zakoshanski (Faculty Research Manager, Science) with input from the complete School Research Committee, in particular Bernard Mans (as DoR), Longbing Cao, Mark Dras, Young Choon Lee, Annabelle McIver, Malcolm Ryan. Revised November 2023.*

## Discipline Norms for Engineering

### 1. *Typical publications in your field/discipline and how they are viewed:*

- Conference articles are more common than journal articles, but journal articles are the most highly regarded.
- Journal articles are often built from conference papers, working out the material in a more thorough and complete way. Often material in a journal article will have been presented earlier in conferences in simpler form (the turnaround time in many electrical engineering journals is quite long, up to two years, so publication first in conferences is the norm). Usually, a researcher will have about two conference papers for every journal paper.
- Refereed journal articles are more highly regarded, and if a researcher has a much higher ratio than 2:1 (conference: journal) then this is not such a good sign.
- That said, some conferences are very prestigious with very low acceptance rates (10% or less) and these conference papers are highly regarded. This is particularly true in computer science or computer networking fields (e.g., Sigcomm and Infocom conferences are very prestigious, other fields have similar top ranking conferences).
- Books/monographs, book chapters and full conference papers accumulate with seniority (and are likely to be rare for ECRs – especially books).
- Journal articles are generally considered more prestigious than book chapters, but invited chapters in edited volumes from a quality publishing house (e.g., Oxford, Cambridge, Academic Press, Wiley etc.) and edited by leaders in the field indicates impact and esteem.
- HDR graduates should have conference presentations from national/international conferences. Paper (or poster) presentations at prestigious international are highly regarded; invited papers in symposia are rare for ECRs (although may occur if awarded as part of a Society prize) and indicates high impact and esteem.

### 2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Sole authorship is rare.
- Authors are listed in the order of their contribution to the article.
- Students are typically first author on PhD outputs with supervisor/collaborators as co- authors.
- Number of authors:
  - Most fundamental/theory publications have 2 - 5 authors.
  - Many experimental/practical publications have 4 - 8 authors.
  - Cross-disciplinary publications typically have 5 - 10 authors.

### 3. *Quality indicators and how to interpret them:*

- For journal articles, quality measures include impact factors (IFs) and/or rankings
- In Electrical Engineering fields, IEEE journals are highly regarded, particularly selected topics journals (e.g., IEEE Journal on Selected Areas in Communications).
- Any Nature/Science publication is exceptional.
- IF > 4 outstanding, IF > 3 excellent, IF > 2 very strong, IF > 1.5 good. But some high IF journals are lightweight – if they are magazines e.g., IEEE



Communications Magazine. One magazine article in a CV can be good, but not too many.

- Citation rates vary by discipline and take several years to become a meaningful metric.
- H-index is difficult to gauge in ECR cases.
- Most conference publications are fully refereed, with acceptance rates typically between 20- 50%.

4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications)*

- MQ discipline profile for 40:40:20 (Research/Teaching/Admin) academics in Engineering suggests the following as expectations (Note that these guidelines are for 40% research active academics):
  - Level A, 1-2 refereed conference papers/year; 1 refereed journal article per year;
  - Level B, 1-3 refereed conference papers/year; 1-2 refereed journal articles per year;
  - Level C, 2-4 refereed conference papers/year; 1-3 refereed journal articles per year;
  - Level D, 3-6 refereed conference papers/year, 2-3 refereed journal articles per year, and occasional book chapter;
  - Increasing international recognition in the invited papers, best paper prizes, invited talks.

5. *An "outstanding" MQRF applicant:*

- >10-15 publications (depending on year since PhD graduation), many if not most senior-authored, and at least several in high quality (IF > 2.2) journals (e.g., IEEE journals/transactions).
- Several national and international conference presentations.
- And potentially:
  - Evidence of peer-esteem in the form of Society prizes, invited conference presentations, invited book chapters;
  - Evidence of initiative and success with small research grants (<1-5K), including society travel grants, student awards, society research grants etc.;
  - DECRA (or equivalent) application in the works.

6. *Sub-Discipline Comparisons*

- In Electronics, the field of solid-state electronics has many more publication opportunities compared to the field of circuits and electrical engineering
- Engineering covers a wide range of activities from fundamental theory to practical/experimental, in fields ranging from Electrical, Mechanical, Biomedical and Civil, to Physics, Chemistry and Mathematics. As such, there is a wide variety of sub-disciplines where the publication norms can vary significantly.

*Provided by Prof Iain Collings, School of Engineering (April 2020)*

## Discipline Norms for Mathematics and Statistics

### 1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- Publication practices vary widely between various sub-fields of mathematics, so these comments can only be seen as a general guide. Some mathematicians (particularly, applied mathematicians) and statisticians sometimes publish in allied fields, where practices can vary again.
- Refereed journal articles are the norm and most highly regarded; book chapters are often treated as equivalent. Books/monographs are fairly rare even among more senior academics.
- Journal articles are considered more prestigious than conference publications.
- Increasingly the publication of comprehensive software packages on the Comprehensive R Archive Network (CRAN) are viewed as a high level publication. These will often be accompanied by, or followed up with, an archival journal publication detailing the computational methodology underlying the package.
- The length of papers can vary substantially, and should not be treated as a measure of quality.
- The number of authors is generally not taken into account in assessing output.
- Traditionally there has been a significant delay between acceptance and publication of a paper. This delay is becoming increasingly shorter, with early online access to accepted papers becoming the norm. As a result of these delay, the discipline regards papers that are accepted as being equivalent to those which have appeared in print.
- Presentation at a conference is generally a separate process to publication. In particular, if a conference publishes proceedings, these will be separately refereed and occasionally may contain papers not presented at the conference.
- Invited journal or conference papers are rare among junior academics and indicate impact and esteem.

### 2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- In Pure Mathematics, authors of papers are usually listed alphabetically. In Applied Mathematics and Statistics, authors are normally listed in the order of their contribution to the article.
- Most mathematics papers would have between 1 and 5 authors. It is rare for an Applied Mathematics paper to have less than two authors, and Applied Statistics papers can have many more.

In Pure Mathematics, it is common, but by no means always the case, that PhD supervisors are *not* listed as co-authors, regardless of their contribution. In Applied Mathematics and Statistics, PhD supervisors are allocated authorship according to their contribution, as in any other paper. In Statistics re order of authors, it is split in approximately equal parts between

- Alphabetical
- Proportion of authorship
- Proportion of authorship except last author who is the (senior) project leader

3. *Publication quality and impact indicators and how to interpret them:*

- Publication rates are generally slow (sometimes up to two years, or more, from submission to publication) and citations rates are relatively low in Mathematics when compared to other natural and physical sciences. Publications often have a relatively long citation “half-life”. Simple citation based metrics are a poor measure of quality, especially for recent publications.
- Journal impact factors do not necessarily reflect journal quality in most of the mathematical sciences; the exception is within Applied Statistics where journal impact factors are often a good measure of the quality of the research.
- The ERA 2010 ranked list of journals, developed in under the auspices of the Australian Mathematical Society and the Statistical Society of Australia, are still seen as an unofficial quality measure for archival publications, and are often quoted internationally. Care must be taken with relatively new journals, and discipline specific expert judgement is required in these cases.

4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*

- As a rough guide, a teaching/research academic at Level B might expect to publish 1 journal article per year. This varies between disciplines in mathematics and statistics. Applied Mathematics and Applied Statistics tend to have slightly more than this.
- Research level mathematicians at Level A would generally be postdocs.
- As mentioned above, the number of co-authors is generally not taken into account, although within 3-4 years post-PhD you might expect to see either at least one solo paper, or some variation in the co-authors. Sole authorship is not as valued outside of Pure Mathematics, although developing a collaborative network through new co-authors is valuable.
- An outstanding candidate might have published (or had accepted) 5 papers within 3 years of a PhD, with 2-3 in A or A\*-ranked journals (this is field dependent for reasons mentioned earlier).

*Updated November 2023*

## Discipline Norms for Medical Biotechnology and Nanotechnology

1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- Refereed journal articles are the norm and most highly regarded. Books/monographs are rare and highly regarded. Book chapters or editing of a book is somewhat more common.
- Journal articles are considered more prestigious than conference publications.
- Within this area, Engineers are more likely to present and publish original work in conference proceedings. Many conferences have low acceptance rates (below 30%), though the level of peer review, is extremely varied.
- Invited journal or conference papers are rare among junior academics and indicate impact and esteem.

2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Sole authorship in Medical Biotechnology and Nanotechnology is rare and should be rated very highly (especially in a high impact journal).
- Co-authorship is normal, but the number of authors can vary widely. The order of authorship represents the degree of contribution to the publication (authors are listed in the order of their contribution to the article). The exception to this is the final author, which is typically the research group leader.
- PhD students typically are first author on their PhD outputs with their supervisor/s as co- authors. Additional authors may be present.
- Very large groups of authors are uncommon except where several specialised technology contributions from different groups were required to carry out the research that is the subject of the paper.

3. *Quality indicators and how to interpret them:*

- An early measure of journal paper quality is given by the journal impact factor (IF) and/or journal ranking. As a rough guide, an IF > 2.5 is reasonable, while IF > 6 might be considered high impact. Journals such as Nature and Science have much higher impact factors and are a mark of very significant work. Speciality journals often have low impact factors due to their limited readership.
- The impact of articles can be assessed by comparing the citation rate, i.e. the number of citations per year. The impact factor of a journal measures the number of time an 'average article' in a journal has been cited per year. The actual citation rate may indicate an excellent paper that has had a high impact, but was published in a low impact journal.
- The H-index also can be used as a guide to impact. H-index in excess of number of years since PhD is excellent, but really this is a better indication for senior academics.
- Other more qualitative measure of impact include who is citing the work and/or who has adopted the methods/built on the outcomes. Paper downloads may also be considered.

4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*

- The (now defunct) discipline profile for promotion of research only staff in Physics at Macquarie included the following expectations for publication: Level A

## Macquarie University Research Fellowships Scheme (MQRF) Discipline Norms

should have at least 1 C1 publication/year; Level B should have at least 2 C1 publications/year.

- As a rough guide, 3-4 C1 publications stemming from a PhD is a high standard. In addition, a similar number of conference papers could reasonably be expected.
- Outstanding for the purposes of the MQRF would be 3-4 first author publications from PhD, and 1-2 first author publications per year since that. Approximately 75% of these would be in high impact journals. Non-first author publications are a bonus, but the relative contribution needs to be considered. You would also expect to see a similar number of national and international conference papers. A citation rate above 6 per year is a robust indicator of impact.

*Provided by Helen Pask and Orsola De Marco (Science, Physics & Astronomy), MQRF Panel Member and MQRF Deputy Chair, respectively, September 2013. Updated by Devika Kamath May 2021. Updated by Richard de Grijs, Judith Dawes, Richard Garner, Sam Muller August 2023.*

## Discipline Norms for Natural Sciences

The School of Natural Sciences includes researchers from a number of disciplines – Biology, Environmental Sciences, Chemical Sciences, and Solid Earth Sciences. Each of these disciplines differs markedly in the norms for publications, authorships, quality indicators and expectations for ECRs and details are presented separately below.

## Discipline Norms for Biology

### 1. *Typical publications in your field/discipline and how they are viewed:*

- Refereed journal articles are the norm and most highly regarded.
- Books/monographs, book chapters and full conference papers accumulate with seniority (and are likely to be rare for ECRs – especially books).
- Journal articles are generally considered more prestigious than book chapters but invited chapters in edited volumes from a quality publishing house (e.g. Oxford, Cambridge, Academic Press, Wiley, etc.) and edited by leaders in the field indicates impact and esteem.
- HDR graduates should have conference presentations from national/international conferences. Typically, conference papers do not result in peer-reviewed proceedings.
- Paper (>poster) presentations at prestigious international conferences are highly regarded; invited papers in symposia are rare for ECRs (although may occur if awarded as part of a Society prize) and indicate high impact and esteem.

### 2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Sole authorship is rare. Any sole-authored papers should be considered an indicator of substantial independence and initiative.
- Authors are generally listed in order of descending contribution to the article (and alphabetically within sub-groups contributing equally) although it is not unusual for the senior author (lab leader) to be listed last. This will not normally apply at PhD or post-doctoral fellow career stage.
- Students are typically first author on PhD outputs with supervisor/collaborators as co-authors.
- Most publications have 2–5 authors. Even on multiple-author papers there are often ‘ranks’ of contribution: check for authors ranked in alphabetical order, usually a marker of lesser contribution.

### 3. *Quality indicators and how to interpret them:*

- For journal articles, quality measures include citations, impact factors (IFs) and/or rankings (e.g. ERA), but these may be meaningless for papers less than 2 years old.
- Any publication in Nature or Science publication is truly exceptional, especially with the recent proliferation of high-impact second-tier journals from those publishers (Nature Ecology & Evolution; Nature Plants; Science Advances; etc). Publications in those second-tier journals, as well as any publications in PNAS, Current Biology, Trends in Ecology and Evolution, etc. (i.e. IF >10 or better, should also be highly regarded).
- IF >4 outstanding, IF >2.5 excellent, IF >1.5 good.
- Citation rates vary by discipline and take several years to become a meaningful metric.

## Macquarie University Research Fellowships Scheme (MQRF) Discipline Norms

- Outputs in more generic international Journals are increasingly valued over national or very specific journals, although a mix of such outputs is to be expected.
  - H-indices are rarely informative for ECRs, because there has been too little time for citation rates to reflect paper quality as judged by peers. The m-index may be more appropriate as it takes into account the number of years since first publication but must be used carefully as it assumes an uninterrupted research career (or must be adjusted for any interruptions).
4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications):*
- MQ discipline profile for 40:40:20 (Research/Teaching/Admin) academics in Biology suggests the following as expectations (Note that these guidelines are for 40% research active academics):
  - Level A: 1–2 C1 paper/year
  - Level B: 2–4 C1 papers/year; conference papers useful but not as a substitute
5. *An "outstanding" MQRF applicant:*
- 0–1 years out of PhD: 5 quality publications (with some sole or first authored and in high quality, i.e. IF>2.5 journals).
  - 3 years out of PhD: 10–15 publications (with several sole, first or senior authored and in high quality, i.e. IF>2.5 journals).
  - Several national and international conference presentations (if funding has allowed them to travel internationally – certainly cannot be assumed).
  - And potentially:
  - Evidence of peer-esteem in the form of Society prizes, invited conference presentations, invited book chapters
  - Evidence of initiative and success with small research grants (up to \$10k), including society travel grants, student awards, society research grants etc.
  - DECRA (or equivalent) application in the works.
  - Evidence of engagement with the broader scientific community, society, government or industry, e.g. media coverage, Conversation articles, engagement with museums, schools
  - Evidence of impact or influence, e.g. influencing policy, very high altimetric scores, etc.

Provided by Darrell Kemp (Science, Biological Sciences), MQRF Panel Member, September 2013; revised by Melanie Bishop (Director of Research, Biological Sciences), May 2016; revised by Biology Research Committee, April 2020. Updated by Katie Dafforn and Research Committee (School of Natural Sciences), October 2023.

## Discipline Norms for Environmental Sciences

### 1. *Typical publications in your field/discipline and how they are viewed;*

- Refereed journal articles are the norm and most highly regarded.
- Books/monographs, book chapters and full conference papers accumulate with seniority (and are likely to be rare for ECRs – especially books).
- Book chapters are often simply standard research papers but in an edited volume they are usually peer-reviewed [but that is worth checking]. They are generally viewed as equivalent to a journal paper but will not attract as many citations (and are declining as a form of publication). They may be invited, perhaps after participation in a conference. Should not be confused with less prestigious encyclopaedia entries.
- Conference papers range from substantial works in peer-reviewed publications, which are regarded as good but a little below journal articles. Abstracts or extended abstracts (check the number of pages!) are usually not peer-reviewed and are routine marks of participation in a conference: they are (despite some attempts in CVs) not regarded as substantial work and are being discouraged due to lack of citations.

### 2. *Norms for authorship (e.g., sole vs joint, order of authorship);*

- Sole authorship is rare. Any sole-authored papers should be considered an indicator of substantial independence and initiative.
- Authors are generally listed in order of descending contribution to the article (and alphabetically within sub-groups contributing equally).
- Although it is not unusual for the senior author (lab leader) to be listed last, this will not normally apply at PhD or post-doctoral fellow career stage. This will not normally apply at PhD or post-doctoral fellow career stage.
- Students typically first author on PhD outputs with supervisor/collaborators as co-authors.
- Most publications have 2 - 5 authors. Even on multiple-author papers there are often 'ranks' of contribution: check for authors ranked in alphabetical order, usually a marker of lesser contribution.

### 3. *Quality indicators and how to interpret them;*

- For journal articles, quality measures include citations, impact factors (IFs) and/or rankings (e.g. ERA), but these may be meaningless for papers less than 2 years old.
- Any publication in Nature or Science publication is truly exceptional, especially with the recent proliferation of high-impact second-tier journals from those publishers (Nature Ecology & Evolution; Nature Earth and Environment; Nature Sustainability; Science Advances; etc). Publications in those second-tier journals, as well as any publications in PNAS, Current Biology, Trends in Ecology and Evolution, etc. (i.e. IF 10 or better, should also be highly regarded).
- IF > 4 outstanding, IF > 3.0 excellent, IF > 1.5 good. Lower IF journals may have higher value if relevant to stakeholder groups and industry via applied research, and this is appropriately justified in the application.
- Outputs in more generic international journals are increasingly valued over national or very specific journals, although a mix of such outputs is to be expected.



- H-indices are rarely informative for ECRs, because there has been too little time for citation rates to reflect paper quality as judged by peers. Having an H-index at all may be a sign of success.
  - There should be conference presentations from national and international conferences in the track record. Oral (>poster) presentations at prestigious international conferences are highly regarded, but at some large international conferences (e.g. EGU or AGU) posters or PICO presentations are considered highly; posters at lesser conferences are less well regarded; invited papers are rare for ECRs and indicate high impact and esteem.
4. *A general guide to expected output post PhD and per year/level (e.g. number and kind of publications; Departmental research productivity expectations for academics suggest the following;*
- The expected output of a Level A 40:40:20 (Research/Teaching/Admin) academic is 1x C1 publication per year, noting that 2-3 is competitive for national grants. An ECR pursuing a career in research can be expected to produce 1-2 papers for each year post-PhD for the first three years.
5. *An "outstanding" MQRF applicant;*
- 10+ publication "events" weighted toward journal papers and book chapters, but possibly including full conference papers (for 0-2 yr. PhD graduates). Many if not most of these will be first-authored, some sole-authored, and at least several in high quality (IF > 3.0) journals.
  - The increasing presentation of thesis-by-papers means that many graduates will already have 3- 5 C1 papers accepted or submitted upon completion of their PhD.
  - Several national and international conference presentations.
  - Transition to CI role in a post-PhD research project (including postdoc).
  - Recognition in the form of prizes and awards. These may be for undergraduate or postgraduate performance, University Medals, or conference awards.
  - And potentially;
  - Evidence of peer-esteem in the form of conference prizes, invited conference presentations, invited book chapters;
  - Evidence of initiative (i.e. lead CI/applicant status) and success with small research grants (<1- 5 k), including society travel grants, student awards, society research grants etc.;
  - DECRA (or equivalent) application in the works;
  - Evidence of engagement with the broader scientific community, society, government or industry, e.g. media coverage, Conversation articles, engagement with museums, schools
  - Evidence of impact or influence, e.g. influencing policy, very high altimetric scores, etc.

*Provided by Paul Hesse and Damian Gore (Department of Environmental Sciences), June 2016. Updated by Kirstie Fryirs (Department of Earth and Environmental Sciences) April 2019, 2020. Updated by Katie Dafforn and Research Committee (School of Natural Sciences) October 2023.*

## Discipline Norms for Molecular Sciences

### 1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- Refereed journal articles are the norm and most highly regarded.
- Contributions to chapters of specialist books (or books themselves) are also considered an important indicator of scholarship. These accumulate with seniority but comprise only a small percentage of publications for senior academics. They are also often by invitation. Publishing of scholarly books is rare but a sign of particular distinction when it occurs.
- Journal articles are generally more prestigious than book chapters but invited chapters in volumes from a quality publishing house (e.g., Oxford, Cambridge, Academic Press, Wiley etc.) and edited by leaders in the field indicates impact and esteem.
- Publication of review articles targeting a wider audience in a recognised review journal would usually be evidence of the high professional standing of the author.
- ECRs should have conference presentations from national/international conferences. Paper/poster presentations at prestigious international conferences are highly regarded. Invited papers in symposia are rare for ECRs but indicate high impact and esteem. It should be noted that not all conference abstracts are automatically accepted, rather, some top conferences have low acceptance rates and abstracts may be peer-reviewed (though often at the level of the conference scientific organisers).

### 2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Research is often highly collaborative and thus co-authorship is usual. The multidisciplinary nature of some studies may justify six or more authors.
- Very large numbers of authors is not unusual in some disciplines (e.g. genomic based) but typically appear in high impact journals, or where research is cross-disciplinary, with contributions from different groups with specialised technological skills. Publications on cross-laboratory analysis method validations also have large numbers of authors.
- Authors are listed in the order of their degree of contribution (data acquisition, analysis, interpretation, intellectual input) to the article. This can vary between different research groups and also in a multi-authored cross-disciplinary publication, which requires careful evaluation
- It is the disciplinary norm for the first author on the published article to be the individual who conducted the majority of the research (both data collection and analysis), interpreted the results and drafted the manuscript. The student is typically first author on PhD outputs with supervisor/collaborators as co-authors.
- The group leader who has led the research in terms of conceptualising and planning the research, co-ordinating input from different co-authors and interpreting results, and handling the manuscript, is typically the last author.
- First and last authorship on a paper are both recognised as major authorship contributions.
- It is not uncommon to have equal roles represented by either joint first or last authorship as indicated in a footnote to the author list.
- Sole authorship is very uncommon.
- Where appropriate, granted Patents are also a mark of research productivity

3. *Quality indicators and how to interpret them:*

- Objective measurements for quality of impact can include impact factor (IF) of the journal, ranking of the journal within the discipline and citation numbers for particular outputs. However, these measures can both be limiting and difficult to gauge in ECR cases as their work is often in specialised journals which by definition have lower impact. As a guide, IF >4 may be considered outstanding, IF >2.5 excellent, IF >1.5 good, for an ECR.
- Scholarly Citation rates: The quality of journal articles can sometimes be assessed via citation rates although there is often a significant lag time before this can be used as a meaningful metric. The time lag is especially true in the more physical and theoretical sciences.
- The H-index also can be used as a guide to impact. H-index in excess of number of years since PhD is excellent, but since it is based on citations is really a better indication for senior academics.
- Any Nature, Science, Cell, PNAS, JACS, Angewandte Chemie, Chemical Science publication is exceptional and a mark of very high esteem. Publication in high quality, discipline-specific Society journals is also recognized as having had quality peer-review and is well-regarded.
- Altmetrics measures can also be used to capture the immediate impact of the research through media such as articles in popular press, research blogs, testimony to government, committees, social media, shares, social usage/viewer statistics etc. although this newer form of measure can be subject to manipulation and lack of peer review.
- Measurement of quality should not be based on a single one-off high impact publication, rather the research activity as a whole.

4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) for an outstanding MQRF applicant:*

- >5-15 publications (depending on year since graduation) with the majority as first author (or senior author), and several in high quality journals in the discipline.
- Compared to other sciences, it is not the norm for PhD theses in the Molecular Sciences to comprise 3 or more first author peer-reviewed publications. It is common for papers from thesis work to be published in the first year post graduation with typically a total of 2-4 publications stemming from an author's PhD. A typical rate would be 1-2 lead-author publications/year following.
- Several national and international conference presentations.
- Potentially invited conference presentations, invited book chapters.
- Evidence of success with small research grants, travel grants, student awards (Society prizes)
- Evidence of application for other fellowships.
- Evidence of engagement with industry and technology transfer activities (e.g. research contracts, submission of patents, entrepreneurial activities).

*Provided by Irina Zakoshanski (Faculty Research Manager, Science) with input from Molecular Sciences Research Committee (Rodger, Wang, Garcia-Bennett, Karuso, Piggott, Cain, Haynes, Paulsen, Packer, Venkatesan) (Molecular Sciences), April 2020. Updated by Katie Dafforn and Research Committee (School of Natural Sciences), October 2023.*

## Discipline Norms for Solid Earth Sciences

### 1. *Typical publications in your field/discipline and how they are viewed:*

- Refereed journal articles are the norm and highly regarded.
- Books/and book chapters are much less common, but their value is considered high. Many contributions to edited books/series, especially of geological society publications carry comparable weight to journal articles.
- Conference papers most usually appear as special issues in international journals, in which case they count as equivalent to journal articles. Two to three-page extended abstracts are generally not reviewed and are not viewed as full publications.
- HDR graduates should have conference presentations from national/international conferences. Oral *and* Poster presentations at prestigious international conferences are highly regarded (depending on the Conference, posters have equal value with oral presentations). Invited papers in symposia are rare for ECRs and indicate high impact and esteem.

### 2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Collaborative research has become the norm, so that single-authored publications are rare, reflecting the importance of team research in Earth Sciences. Indeed, if a junior researcher has mainly single-authored papers, this may indicate a lack of interest in, or ability for, teamwork.
- The first-listed author is expected to have conducted most of the research and written a substantial proportion of the article. Placement of the supervisor's (or team leader's) name on contributions is inconsistent; some favour second place, others last place. In many cases, the order of authorship reflects the proportional input to the paper, but this is not universal or binding.
- Students thus typically first author PhD outputs with supervisor/collaborators as co-authors. There can be exceptions where very large PhD projects are carried out in tandem and may have alternate first authorship by the postgraduate students involved.
- Authorship customs for abstracts are similar to those for papers.
- Review articles by ECRs are taken to indicate early recognition of exceptional overview of the discipline.

### 3. *Quality indicators and how to interpret them:*

- For journal articles, quality measures include impact factors (IFs) or stakeholder relevance (e.g. Aust. J. of Earth Sci.; Economic Geology; Journal of Asian Earth Sciences).
- Any Nature group/Science/PNAS publication is exceptional.
- IF > 4 outstanding, IF > 3.0 excellent, IF > 1.5 good (lower IF journals may have higher value if relevant to specific stakeholder groups, and appropriately justified in the application).
- Citation rates vary greatly by discipline and because of slow publication rates. Individual papers can take several years to become a meaningful metric.
- The average length of geoscience publications is longer than in any other science disciplines, meaning that writing time, publication time and consequently the time lag before appreciable citation is long and must be allowed for. Length is however, NOT a measure of quality: some very long ones are regarded just as highly as shorter ones.

- H-index is difficult to gauge for ECRs because of the relatively slow publication process.
4. *A general guide to expected output post-PhD and per year/level (e.g., number and/or kind of publications):*
- The expected output for a research-only Level A position is one paper per annum, noting that 2-3 is required to be competitive for national grants. An ECR (i.e. pursuing a career in research) can be expected to produce 1-2 papers for each year post-PhD for the first three years.
  - It is now normal for a PhD student to write a thesis in the form of 3-4 publications, but it is not common for more than one of these to be already *published* at the time of completion. For an outstanding student, these will mostly appear in the first year post-PhD.
  - Citations: because of the time lag that results from slow publication, a high number of citations cannot be expected two years after completion. The citation count and H-Index can be quite erratic.
  - An outstanding ECR (with potential for MQRF) would have produced at least 2-3 publications per year. These people are more likely to have published more papers *before* completion of the PhD.
  - An outstanding MQRF applicant in earth sciences should also have:
    - at least half his/her publications as first author
    - made presentations at several national/international conferences (depending on opportunity)
    - First-authored publications are the best guarantee of quality: other papers are a bonus at this stage.
5. *An "outstanding" MQRF applicant:*
- ≥3 publications (1 year out of PhD), in high quality (IF>3) journals and/or well justified stakeholder-relevant journals.
  - Several national and international conference presentations.
  - Evidence of transition to CI role in a post-PhD research project (including postdoc).
  - And potentially and only according to opportunity
  - Evidence of peer-esteem in the form of Society prizes, invited conference presentations, invited book chapters,
  - Acted as a reviewer for international journals,
  - Evidence of initiative and success with small research grants including society travel grants, student awards, society research grants etc.,
  - DECRA (or equivalent) application in preparation or submitted.

*Updated by Stephen Foley (EES), April 2020. Updated by Nathan Dazcko (School of Natural Sciences), October 2023.*

## Discipline Norms for Physics and Astronomy

### 1. *Typical publications in your field/discipline and how they are viewed (e.g., book chapters):*

- In most physics and astronomy fields, refereed journal articles are the norm and most highly regarded.
- Books/monographs are rare even among more senior academics. Book chapters or editing of a book is somewhat more common but mostly among more senior academics.
- Journal articles are considered more prestigious than conference publications. However, there are a few exceptions as listed below.
- Full review with reports and resubmission as commonly found in computing and engineering is very uncommon, but most conferences in optics have technical assessment of all submissions and acceptance rates at the big meetings of 25-30% is not uncommon.
- In quantum information physics some conferences that have a significant computer science contribution are of very high esteem.
- In the astronomy and astrophysics, in the research domain of instrumentation, SPIE (conference proceeding papers) are more common than actual journal papers. Proceedings of International Astronomical Union Symposia are refereed. These are among the most prestigious conferences in the field, and acceptance of a paper indicates international impact.
- It is usual for Physics graduates to have disseminated their research at conferences. Many of the top Physics conferences have low acceptance rates (say 30%), but most conference papers are not actually peer-reviewed.
- In the field of quantum information physics, a talk at Quantum Information Processing (QIP) or talks/papers at STOCS or FOCS indicated an exceptional candidate.
- For Astronomy graduates, contributed talks in conferences can be common but in more recent times they do have a selection process since in major astronomy conferences contributed-talk limits can be reached.
- Invited journal or conference papers are rare among junior academics and indicate impact and esteem.

### 2. *Norms for authorship (e.g., sole vs joint, order of authorship):*

- Sole authorship in Physics and Astronomy is rare and should be rated very highly (especially in a high impact journal).
- Co-authorship is normal, but the number of authors can vary widely depending on the nature of the project.
- The order of authorship represents the degree of contribution to the publication (authors are listed in the order of their contribution to the article). The exception to this is the final author, which in Physics is typically the research group leader. For Astronomy, it is not usual that the group leader is the last author.
- PhD students typically are first author on their PhD outputs with their supervisor/s as co-authors.
- Additional authors may be present. Most publications probably have between 2 and 5 authors.

- Very large groups of authors are reasonably rare except where several specialised technology contributions from different groups were required to carry out the research that is the subject of the paper. In Astronomy and Astrophysics, papers published by survey teams tend to have large numbers of authors; authorship near the start of the author list is an indication of a significant contribution.
- In theoretical and space physics, it is common (especially when all authors are beyond PhD) to list author names alphabetically.

3. *Publication quality and impact indicators and how to interpret them:*

- For journal articles, quality is best measured in terms of the journal impact factors (IFs) and/or journal rankings. These vary widely between areas of Physics. As a rough guide, an IF > 2.5 is very strong for many areas of Physics. Journals such as Nature and Science have much higher impact factors and are a mark of very high esteem. Most 'standard', well-respected research journals in Astronomy and Astrophysics have IFs > 4.
- The impact of individual articles can be assessed by comparing the citation rates, the time since publication and the impact factor for the journal. Recall the impact factor of a journal measures the frequency with which the 'average article' in a journal has been cited in a particular year or period, so this is a very good measure that should be free of bias.
- The H-index also can be used as a guide to impact. H-index in excess of number of years since PhD is excellent, but really this is a better indication for senior academics.
- Other more qualitative measure of impact include who is citing the work and/or who has adopted the methods/built on the outcomes.

4. *A general guide to expected output post PhD and per year/level (e.g., number and/or kind of publications) as well as what "outstanding" might look like:*

- As a rough guide, the (now defunct) discipline profile for promotion of research only staff in Physics at Macquarie included the following expectations for publication: Level A should have at least 1 C1 publication/year; Level B should have at least 2 C1 publications/year.
- As a rough guide, 3-4 C1 publications stemming from a PhD is a very high standard. In addition, a similar number of conference papers could reasonably be expected. In Astronomy and Astrophysics, conference papers are gradually dying out, so a lack of conference papers should not be interpreted as a bad sign.
- So truly outstanding for the purposes of the MQRF would be 3-4 first author publications from PhD, and 1-2 first author publications per year since that. Approximately 75% or more of these would be in high impact journals. Non-first author publications are a bonus, but the relative contribution needs to be considered. You would also expect to see a similar number of national and international conference papers. Citation rates above the journal impact factor is a robust indicator of impact.
- Evidence of initiative and success with small research grants - mostly travel grants to conferences, poster or talk prizes in conferences.
- In Astronomy and Astrophysics, getting time on a telescope (or a national supercomputing facility) is a very competitive process (often with high

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oversubscription rates), particularly for international or space-borne observatories, and qualifies equally to getting research funding.

- If an applicant is named as an inventor on a patent or provisional patent that is another mark of high achievement. Patenting is only relevant in some areas of physics but indicates research of potential commercial impact.

*Updated November 2023*