

## Annals of Actuarial Science

*Annals of Actuarial Science* (AAS) is published twice yearly by Cambridge University Press for the Institute and Faculty of Actuaries. AAS accepts manuscript submissions through the ScholarOne Manuscripts system at:

<https://mc.manuscriptcentral.com/aoas>

Papers on any area of actuarial research or practice are welcome and will be considered for publication. Suitable topics include, but are not restricted to: new developments in actuarial practice; original research in actuarial science and related fields; or reviews of developments in a field of interest to the actuarial profession.

Each paper must include an abstract, keywords and contact details of relevant authors. The abstract, which should be about 100-200 words, should be written so that others are encouraged to read the paper. It should give the main objectives and conclusions of the paper.

All published work should be acknowledged, and references given. The author is responsible for securing written permission to include any copyrighted material. Notwithstanding any scrutiny and any alterations made, authors remain solely responsible for the accuracy of all material provided and views expressed. Submitted papers should not have been copyrighted or submitted for possible publication elsewhere at the same time as being submitted to AAS. Any previous publication, for example in conference proceedings, should be notified to the editor at the time of submission. If the paper is accepted for publication the author(s) must sign a copyright declaration, transferring copyright to the Institute and Faculty of Actuaries.

All submitted papers are peer-reviewed by anonymous referees appointed by the Editor. Papers may need minor or major revisions before they can be accepted for publication, or they may be considered to be unsuitable for AAS. The Editor's decision is final.

All papers should be written in English (UK). The style should be reasonably formal, but should be as clear and understandable as possible. Enough information should be included to allow a reader to reproduce any mathematical or numerical results.

Authors, particularly those whose first language is not English, may wish to have their English-language manuscripts checked by a native speaker before submission. This is optional, but may help to ensure that the academic content of the paper is fully understood by the editor and any reviewers. We list a number of third-party services specialising in language editing and/or translation, and suggest that authors contact as appropriate:

<http://journals.cambridge.org/action/stream?pageId=8728&level=2&menu=Authors&pageId=3608>

Please note that the use of any of these services is voluntary, and at the author's own expense. Use of these services does not guarantee that the manuscript will be accepted for publication, nor does it restrict the author to submitting to a Cambridge published journal.

Please visit <http://journals.cambridge.org/openaccess> for information on our open access policies, compliance with major funding bodies, and guidelines on depositing your manuscript in an institutional repository.

Any enquiries should be addressed to the Editor,

Professor Angus Macdonald  
Department of Actuarial Mathematics & Statistics Heriot-  
Watt University  
EDINBURGH  
EH14 4AS  
United Kingdom  
E-mail: [a.s.macdonald@hw.ac.uk](mailto:a.s.macdonald@hw.ac.uk)  
Direct Line: +44 (0)131 451 3209 Fax: +44 (0)131 451 3249

## **AAS style guide for formatting of papers**

Please supply copies of original application files – namely, Word or .Tex files following the standard layout for an AAS paper (Tex files must be accompanied by a PDF, as a guide for the typesetter).

### **Order of paper**

Each paper contains:

- title
- author(s) name(s)
- abstract
- keywords
- correspondence details
- introduction
- text
- acknowledgements
- references and appendix(es).

### **Title**

The title of the paper has an initial capital only, e.g.:

Pensions and mortality data

### **Author's name(s)**

The author or authors' name(s) are below the title with an asterisk denoting the corresponding author e.g.:

Robert Smyth\* and Len Brown

### **Abstract**

All papers require an abstract. This should be a summary of the paper, in one long or two or three short paragraphs. e.g:

#### **Abstract**

Mortality data are often classified by age.....etc

The abstract should not contain references.

### **Keywords**

Choose keywords that give an indication of what is of interest in the paper, normally not more than five words or short phrases, e.g.:

#### **Keywords**

Pension shares; Valuation methods; Market values; Funding; Pricing

Note that keywords should have an initial capital.

## Correspondence details

The name and contact address of the corresponding author with e-mail address must be given at the bottom of the first page as, e.g.:

\*Correspondence to: Robert Smyth, Department of Statistics, University of Southampton, Southampton, SO10 1AG, UK. E-mail: r.d.smyth@sotonuni.co.uk

## Main text

All sections are numbered and each section (apart from the introduction) can be divided into numbered sub-sections (if required). Numbered paragraphs are not needed as this is *British Actuarial Journal* style only.

### 1. Introduction

The quick brown fox jumped over the lazy brown dog. The quick brown fox jumped over the lazy brown dog. The quick brown fox jumped over the lazy brown dog.

### 2. The quick brown fox

The quick brown fox jumped over the lazy brown dog. The quick brown fox jumped over the lazy brown dog. The quick brown fox jumped over the lazy brown dog.

#### 2.1. The quick brown fox again

The quick brown fox jumped over the lazy brown dog. The quick brown fox jumped over the lazy brown dog. The quick brown fox jumped over the lazy brown dog.

### 3. etc

**N.B.** If using acronyms the full name/title must be given at the first mention followed by the initials in brackets e.g. Pensions Management Institute (PMI) which can then be subsequently referred to as PMI.

## Formulae

Generally any queries concerning notation can be answered by viewing recent articles in the Journal. However, the following guide provides the key points to note.

Mathematic formulae should be typed and centred on a separate line and identified consecutively after each formula by Arabic numerals with the number placed in brackets eg Equation (1), Equation (10). Appendix equations should be numbered separately as equation (A.1), equation (A.5).

**Italic font** should be used for:

- Denoting variables
- Greek letters
- Differential  $d$
- Partial delta  $\partial$
- Orbitals  $s, p, d, f$

**Upright Roman font** should be used for:

- Multiletter variables
- Common operators e.g. log, Sin, Var, E
- Exponential e
- Notions

For more information on the preparation of mathematical material, you can refer to: The Chicago Manual of Style (16th ed.) (2010), Chicago: University of Chicago Press

## Acknowledgements

Often authors like to include acknowledgements to those who have helped them in the development of their paper. These should appear at the end of the main text. e.g:

## Acknowledgements

We are most grateful to the University of Bristol for their help and funding of this paper.

## References

References in the text should be in the form:

Smith & White  
(1990) or  
(see Jones *et al.*, 1975).

If there are two authors ‘&’ should be used between surnames, if more than two, only the first named author’s surname should be used followed by *et al.*, see above example .

Place brackets around the year if appearing in the text, if appearing within bracketed comments, a comma should follow the authors’ names before the year, see above examples.

## List of references

The full references must be given in this section and ALL references must be cross-referenced within the text. References are in alphabetical order by first author, and in date order for any one author. If URLs are given, the date of access must be shown.

## References

Jones, E.F., Hughes, G.H. & Thomas, J.K. (1975). *The Lazy Brown Dog*. Fox Publishing.

All authors’ names must be shown, with surname first, followed by initials, & before the last name, year in brackets followed by a full stop.

**Journal references** – full title of paper, followed by journal name in full and in italics. Volume number follows in bold, followed by page numbers (not in bold).

Smith, A.B. & White, C.D. (1990). The Quick Brown Fox. *British Actuarial Journal*, **10**, 71-139.

**Book references** – book title in italics, followed by edition (where given), formatted as e.g. 4<sup>th</sup> ed. Publisher name next, followed by place, formatted as e.g. Wiley, Chichester.

If the same author(s) and year of publication are referred to more than once they must be distinguished by a, b etc. e.g.

Brown (2008a, b) in text and in references list as

Brown, B. (2008a). Pensions crisis. *Annals of Actuarial Science*, **2**, 21-46.

Brown, B. (2008b). *Pensions*. Cambridge University Press.

If URLs are used the access date must be included e.g.

COSO (2004). Enterprise Risk Management - Integrated Framework.

[www.coso.org/.../ERM/COSO\\_ERM\\_ExecutiveSummary.pdf](http://www.coso.org/.../ERM/COSO_ERM_ExecutiveSummary.pdf) [accessed December 2009].

If a paper was presented some time ago, please check if it has subsequently been published in a journal, if so the journal reference needs to be given.

See <http://libweb.anglia.ac.uk/referencing/harvard.htm> for further information on referencing.

## Appendix(ces)

Appendices must follow the references.

## Figures, tables and illustrations

When using figures, tables and illustrations throughout the paper, please follow these guidelines.

### General guidelines

All figures and tables should be numbered throughout the paper, and should have a heading or caption.

Please use explicit references to the figures and tables in the text (e.g. 'see table 4'). Avoid words like 'above' and 'below', as after typesetting the figures and tables might not appear as they do in the manuscript.

All figures should be supplied as separate files. Please do not embed the figures in the text.

Please ensure that the material you submit is of the best possible quality – see below for more details.

Colour figures will appear in colour online, but will be black & white in the print copy.

Charges apply for all colour figures that appear in the print version of the journal. At the time of submission, contributors should clearly state whether their figures should appear in colour in the online version only, or whether they should appear in colour online and in the print version. There is no charge for including colour figures in the online version of the Journal but it must be clear that colour is needed to enhance the meaning of the figure, rather than simply being for aesthetic purposes. If you request colour figures in the printed version, you will be contacted by CCC-Rightslink who are acting on our behalf to collect Author Charges. Please follow their instructions in order to avoid any delay in the publication of your article.

### Black & white versus colour illustrations

Figures, tables and illustrations submitted in black & white will appear black & white in print and black & white online.

Figures, tables and illustrations submitted in colour will appear black & white in print and only in colour online, unless otherwise requested as above. Please provide images that print equally well in black & white as in colour, by e.g. having lines with both colour and pattern. Please do not use tinted panels or surrounding borders.

### Preparation of black & white illustrations

Prepare all black & white illustrations in black & white or greyscale rather than colour.

If you wish to use shading to differentiate areas on the figure, please check your software to see if there are options such as patterns, textures or a range of tones (tints) within black.

The range of tones (tints) in greyscale illustrations should not be less than 15%, and not more than 85%. When creating a scale or using different densities to highlight areas in the illustration, it is best to use increments of 15 or 20%. Any increments of less than this may be hard to differentiate on the printed page.

### Preparation of colour illustrations

Colour illustrations must be saved in CMYK (not RGB). However, if you have colour illustrations that are intended for online publication only, these should be supplied in RGB.

The colours chosen must reproduce effectively and the colours should be distinguishable when printed in black & white.

The descriptions of figures in text and captions must be sufficiently clear for both online and print copy.

Authors will see these colour figures when viewing their author page proofs on screen. Authors should always print their page proofs in black & white to see how they will appear in print. Authors will NOT be allowed to submit colour figures to replace black & white figures at page proof stage.

When submitting figures in colour, authors must include the phrase <<colour online>> in the figure captions. This is the author's responsibility. Here is an example of a figure caption for a colour online only figure:

*Figure 1.* (Colour online) Experimental (dotted curve) and simulated (solid curve) X-ray diffraction spectra.

## **Photographs**

Colour and halftone images must be saved at 300dpi at approximately the final size. If you are unsure of the final size, please save at a higher resolution to allow for resizing.

Please supply original photographs in TIFF format, saved at a minimum resolution of 300 dpi at the correct size for reproduction in the journal. If a TIFF format file is not available, please provide a high resolution JPEG file.

Images downloaded from the internet tend to be 'low resolution', that is 72 or 96 dpi. This means that they will not provide adequate quality when printed. If you wish to use an image which appears on a website, please contact the site's administrator, or the creator of the image, and obtain a copy of the high resolution original.

If you are providing scanned copies of the original image, please make sure that you scan at a minimum resolution of 300 dpi, at the size (or larger than) they will be reproduced.

If you wish to reuse an illustration or photograph from a printed book, you must obtain a copy from the original artwork rather than scan from the printed copy. Please remember it is the author's responsibility to seek the relevant permissions.

It is best to provide your figures in the same size or larger than the size they will be reproduced in the printed journal. If the originals you supply are smaller than they will appear in the journal as they will lose some clarity and detail when enlarged. In particular, photographs that have already been scanned will tend to look pixelated, and line drawings will lose their sharpness.

## **Line Illustrations**

Please provide the original file in either TIFF format, saved at 800 - 1200 dpi (dots per inch), or vector EPS format, at the correct size for reproduction in the journal.

In line drawings, do not use line weights that will be less than 0.5 points at final size. Although line weights of less than this will show up on your computer screen and laser print-out they may not appear when printed.

Please set figure labels in 9pt Arial, Helvetica or a similar sans-serif font. Labels should be set in lower case with an initial capital (e.g. 'Energy levels').

Maths labels should be typed exactly as they appear in the text. For example if a symbol appears in italic in the text or equation, it should also appear in italic in the figure.

All fonts should be embedded.

Common packages such as Adobe Illustrator have options which allow you to output to TIFF or EPS, and we would prefer it if you could supply your files in this format.

Submit figures sized to fit the actual column or page width of the journal so that reduction or enlargement is not necessary.

Submit multipart figures in one single electronic file.

Note that some software packages are generally NOT suitable for conversion to print reproduction, and these include:

- Microsoft PowerPoint files
- Images created in Microsoft Word
- GIFF images downloaded from the web