A Guide to BioScience Style

This Style Guide supplements BioScience's Instructions for Authors and provides further details.

Parts of a Manuscript

Title

• Use title or headline capitalization: Capitalize all words in the title except for prepositions, coordinating conjunctions, and articles (unless any of these are the first or last word in the title).
• There is no period at the end of the title.
• Avoid numerals in titles.
• Keep it short and make sure it describes the contents of the article.

Name(s) of the author(s)

• Do not refer to the author by his or her formal title.
• If the author’s name has a unique spelling, follow the author’s lead in terms of capitalization and spacing.

Abstract and Keywords

• We need an abstract of fewer than 150 words. Keywords are limited to 5.

Author’s biographical information

• Include the name, title, professional affiliation, and (general) addresses for each author and the e-mail address for the first (corresponding) author (if only two authors, include e-mail addresses for both). Also indicate each author’s areas of interest; we may include that information if space allows.

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Text of Article

- Footnotes are not used in the text of the article. Incorporate the information contained in all footnotes into the text.

Headers

- House style allows two types of headers: a header and a subhead. They may not be stacked (i.e., some text must appear between a header and its sub).

Acknowledgments

- Keep acknowledgments brief (about 100 words); include grant information or disclaimers in this section as well.

Other style matters

Abbreviations and acronyms

- At the first mention of a term, government agency, or group that is later identified by its acronym, introduce the acronym parenthetically—that is, “National Science Foundation (NSF).” If the term, agency, or group is not mentioned later in the manuscript, there is no need to show the acronym.
- If a term, agency, or group is better known by its acronym than by its formal name, use the acronym but spell out the formal name in parentheses after the first use of the acronym—for example, “LTER (long-term ecological research) Network,” “NOAA (National Oceanic and Atmospheric Administration).”
- Acronyms and abbreviations are set without periods.
- Do not abbreviate the words company or corporation in text.
- Spell out state names in text.
- Use the percentage sign (%) in Overview and peer-reviewed articles, but spell out percent in features and columns.

Commonly used abbreviations and acronyms

AD (anno Domini)—place before the year (AD 1991)
BA, BS (bachelor’s degree of arts, sciences)—no periods are used

BC (before Christ)—place after the year (4000 BC)

BCE (before the common era)—if BCE is used in place of BC, use in conjunction with CE (common era), not AD; unlike AD, CE follows the year

e.g. (for example)—spell out “for example” in the text; use “e.g.,” parenthetically (note the use of a comma)

FY (fiscal year)—followed by a space and the four-digit year (FY 2000)

global positioning system (GPS)

Jr. (Junior)—use “Jr.” (with the period) in the text and in the author bio section, but drop the period (“Jr.”) in references; “Jr.” is never preceded by a comma (“Joseph Smith Jr.”)

MA, MS (master’s degree in arts, sciences)—no periods are used

OTA (Office of Technology Assessment)

PhD (doctorate)—no periods are used

i.e. (that is)—spell out “that is” in the text; use “i.e.,” parenthetically (note the use of a comma)

US (United States)—spell out when using as a noun, use “US” (without periods) as an adjective.


versus (v.)—do not abbreviate (unless citing a court case) or italicize

**Capitalization**

- Capitalize a title if it precedes the name: President Edward Jones. Do not capitalize if the title follows the name: Edward Jones, president of the Jones Corporation.
- Capitalize trademarks and trade names.
- Do not capitalize in-text references to chapters, figures, tables, and other parts of a book.
• In titles, use lowercase for articles (a, an, the) and coordinating conjunctions (and, but, or, for, nor). The to in infinitives is also lowercased.
• The formal names of office and departments are capitalized, but not shortened references to them (“the Department of State,” but “state department”).
• When abbreviating the name of a college degree, use caps (i.e., BA). When writing out the name of the degree, do not use caps. (bachelor’s degree)
• Do not capitalize federal or government in such combinations as:
  
  federal government  government agents
  state government  executive branch
  US government  federal courts

• Ethnic groupings do not follow a single rule:
  
  black  Caucasian
  Hispanic  Indian
  Native American  Latino
  white  African American

• In capitalizing hyphenated compounds, in a chapter title, for instance, always capitalize the first element and capitalize the second element if it is a noun or proper adjective or if it has equal force with the first element.

• Do not capitalize the names of seasons (winter, spring, summer, autumn or fall).

• Use lowercase for equations, laws, theorems, and formulas:
  
  van der Waals’s equation  Laplace’s formula
  Newton’s first law  the second law of thermodynamics
  the theorem of equal angles

**Italics**

• Words from foreign languages and phrases or words not commonly used are set in italics. See *Words Into Type*, 3rd ed., for a useful list of italicized words and phrases, as well as the list of words at the end.
• Italicize the names of publications in text.
• Italicize all variables in equations.
• Italicize the genus and species of an organism.
  • Italicize genera and species epithets. Place cultivar epithets in single quotation marks.
  • A genus name should be spelled out in the title of an article and on first mention in the abstract and text. After that, it can be abbreviated to the initial letter followed by a period and the species epithet. When two or more genera with the same initial letter are mentioned, use the initial letter
for the first genus mentioned, and abbreviate the next genus mentioned to two or three letters, as necessary, to distinguish it from the first genus. Do spell out the full species name—genus and epithet—the first time that species is mentioned even if the genus, with a different epithet, has been introduced. For example, “Gardeners should know that Porlieria chilensis, Proustia pungens, Plantagol hispidula, and Phylottis darwini are nice shrubs. It would be nice to have P. chilensis in your backyard, but Pr. pungens and Pl. hispidula are hard to grow. Another nice shrub is Porlieria augustifolia. However, P. augustifolia doesn’t grow well outside Texas.” No abbreviation should go beyond three letters, though: “If Salvelinus fontinalis and Salmo clarki were discussed together, the former should be S. fontinalis and the latter should be written out in full, there being little saving in length with the abbreviation ‘Salm.’” (CBE, p. 449).

Lists

- Avoid the use of bullets in text. For numbered lists, use "(1) first item, (2) second item, and (3) item." For lists without an explicitly stated number of items, (a), (b), (c), etc. can be used.
- If the list is composed of complete sentences, each entry is capitalized and followed by a period.

Numbers

- Spell out numbers one through nine, unless expressing a unit of measure. For example, “5 km” but “nine blackbirds.” For numbers above nine, use numerals.
- Do not use a comma to set off the thousand’s place (1000 through 9999), but do use internal comma for numbers 10,000 and up.
- When writing dates, the order is day month year: 2 January 2003.
- Express ratios in numerals.
- For decimal fractions less than 1.0, place a zero before the decimal point (0.7, not .7), unless the quantity never exceeds 1.00, as with levels of significance (“p < .04”), probabilities, and so on.
- Use all digits in numerical ranges—6000–6009, not 6000–9.
- Spell out any number that begins a sentence.
- When two or more numbers in a sentence refer to the same category, and if one of the numbers is 10 or higher, use numerals for all items (“That man has 3 shirts, 2 pairs of shoes, and 12 neckties”).
- Use numbers for decades (“the 1950s,” not “the nineteen-fifties”).
- Standardize phone and fax numbers as follows: 202-628-1500.
- If a range of numbers in the millions is given, the word million must follow each number (“from 8 million to 12 million, not from 8 to 12 million”). The same rule applies to hundreds, thousands, billions, and so on.
• A singular noun always follows quantities or one or less ("0.75 percentage point," “0.32 second”).

**Units of Measure**

• Express all measurements in standard SI units of measure (meters, not feet; kilograms, not pounds). When "tons" are used, mention on first use that they are metric.
• Spell out the names of units when they are used in text without an accompanying numeric value ("The measurements were recorded in kilojoules").
• In tables or figures, unit symbols may be used without accompanying numeric values to save space.
• When numeric values are given, use the unit symbol with a space between the number and the symbol, unless the value begins a sentence, in which case both the number and unit are spelled out.
• Ranges of numbers and their accompanying units are expressed with a single unit following the second number of the range (23 to 47 kV), However, the percentage sign (%) and other symbols that are closed up to numbers are repeated in a range (“from 33% to 47%”).

**Punctuation**

**Apostrophes**

• *It’s* is a contraction meaning *it is*. *Its* is a possessive and does not take an apostrophe.
• In decades and other plurals, do not use an apostrophe (“mid-1990s,” “a woman in her 40s,” “CD-ROMs”).
• Form the possessive of singular nouns by adding ’s. Follow this rule whatever the final consonant. (Exceptions: possessives of ancient proper names ending in -es or -is, the possessive Jesus’, species’)

**Colons**

• A colon is commonly used to introduce a list or series. If a sentence or independent clause follows the colon, the first letter is capitalized. If not, the first letter after the colon is lowercased.
• Do not use a colon if the list or series is a direct object or subject complement. For example:

The authors of the article are
Jane Doe, Cornell University
John Smith, Colorado State University
*but*
The authors of the article are as follows:
Jane Doe, Cornell University
John Smith, Colorado State University

- After a colon in the reference list, use an initial cap.
- Colons are used to indicate ratios (3:1).

**Commas**

- In a series, use a comma before the conjunction (“Tom, Dick, and Harry”).
- A comma is used between city and state. If the city and state appear in text, use a comma after the state as well (“The convention was held in Crystal City, Virginia, last August”).
- A comma follows the complete date when it is used in a sentence (“The convention was held on 12 April 1999, in Crystal City, Virginia”). Do not use a comma when the day is not included.
- Insert a comma after an introductory phrase
- If a dependent clause introduces a complex sentence, it is followed by a comma.
- Do not use a comma to separate not only this from but also that.
- “et al.” is not set off by commas in parenthetic citations—(Burke et al. 2003)—but it is in references—Burke TJ, et al. 2003.
- The form Burke and colleagues (2003) is used in the main text for citations, and the et al. form is reserved for parentheses.

**Dashes**

- The en dash is used to indicate continuing or inclusive numbers, such as dates, time, years, page numbers, or seasons extending over two successive calendar years (e.g., “1997–1999,” “9:00 a.m.–3:00 p.m.”).
- The en dash should not be used when the first number in a range is preceded by “from” or “between” (e.g., “from 1892 to 1898,” not “from 1892–1898”).
- Another use of the en dash is to show equivalence: “mass–ratio range” or “river–floodplain ecosystem.”
- The em dash is used to denote sudden breaks or abrupt changes: “Will he—can he—win the prize?” However, this is a frequently overused punctuation mark.

**Hyphens**

- When proofreading pages, please note that a word with an internal, single-letter vowel at the end of a line should be divided after the vowel: maxi-mum, not max-imum; oxy-gen, not ox-y-gen.
• A compound modifier preceding a noun is hyphenated: a well-dressed woman or a built-in bookcase. If the modifier follows the noun, it is not usually hyphenated.
• Do not use a hyphen when the first element of a compound modifier ends with “-ly.”
• Compounds formed with commonly used prefixes (“pre,” “non,” “bi,” “micro,” “pseudo,” etc.) do not take a hyphen, unless the closed combination might lead to confusion with another term (e.g., “re-creation” and “recreation”) or a letter combination uncommon in English (e.g., “meta-analysis”)
• Use a hyphen with fractions (“three-fourths,” “two-thirds”).

Parentheses

• If an entire sentence is included parenthetically, place the period within the parentheses. Otherwise, the period goes outside the ending parenthesis (if the enclosed phrase or sentence fragment ends the sentence).
• When referring to a panel in the caption to a figure or photograph, use parentheses around the letter used as a panel label: “(a)” and “(b),” not “a.” and “b.”

Periods

• Do not use periods with such abbreviations such as PhD, BA, MA, or US (see “Commonly Used Abbreviations and Acronyms” above).

Semicolons

• Use a semicolon to connect two independent clauses when the conjunction is omitted.
• Use a semicolon instead of a comma between items in a series if one or more items already includes commas.

Quotations

• The initial letter of a quotation may be changed to a capital or a lowercase letter—without brackets—to make the quotation fit syntactically within the passage in which it appears.
• Make sure each quotation is properly attributed to its author.
• Periods and commas usually go within closing quotation mark at the end of a sentence. Dashes, semicolons, question marks, or exclamation points generally go outside the closing quotation mark (only when they are part of the quoted matter do they go inside).
• Use ellipses to indicate a missing word, phrase, or sentence within the quote.
• Do not use ellipses at the beginning or end of a quotation.
• Avoid wherever possible the use of *sic* in quotations. If a quotation contains an obvious misspelling, correct it. If the grammar is wrong, it can be corrected with a bracketed change: “The principle...were” may be edited as: “The principle[s]...were” or “The principle...[was].”
• Quotation marks should not enclose words or phrases after the expression *so-called*.
• For direct quotations of at least one complete sentence, include a page number (along with author and year) in the in-text citation.

References

In-text citations

• Cite references in the text as follows: “In their study of acid rain in the Northeast, Mahoney and Rickey (1993) found...” or “Acid rain afflicts the Northeast (Mahoney and Rickey 1993).”
• Do not use commas between author and year, but do use a comma between different citations for the same author and between different authors (e.g., Mahoney 1993, 1994, Rickey 1995). Multiple citations are listed in chronological order and use lower case letters to indicate separate papers by the same author in the same year (e.g., Zar 1973, Giles 1994a, 1994b). The letter “a” indicates that this particular reference was cited first in the text.
• For authors with the same last name, list the surname followed by their initials (e.g., Wilson EO 1994, Wilson DS 2002).
• For citations with three or more authors, give the first author’s surname followed by “et al.” and then the date: (Stromberg et al. 1994). Note that there is no comma between the name and “et al.”
• For organizations listed as the author in the References cited section, use an acronym for the in-text citations (NSF 1982), and spell out the organization’s name in the Reference cited section, preceded by the acronym in brackets: [NSF] National Science Foundation. 1982.
• For citations of US government agencies, use “USDOI,” “USFWS,” or “USCB” (because in References cited section, we use the official name of the departments, which includes “US.”
• All in-text citations must match the reference section—make sure that each citation has an entry in the reference section and that all references are cited in the text. The style of BioScience is to delete references without an in-text citation.
• Citations of unpublished data are not allowed. If those data come from an identifiable source, treat the data as a personal communication. If the data are the author’s own, no in-text citation is necessary.
• Personal communications are cited parenthetically in the text; they are not entered in the References cited section. Show name, affiliation, and date of the communication: (Thomas Chapin, Department of Biology, University of Maryland, College Park, personal communication, 15 October 1999).
• If a figure or table is called out where a source is cited, list the figure callout first, followed by a semicolon and the citation: (e.g., figure 3; Sparks et al. 1998).

• Unpublished manuscripts:
  • Manuscripts that have been accepted for publication may be used as references.
  • If the date of publication is known—that is, if the manuscript is in press—list the year of publication in “References cited” and in the in-text citation (e.g., Foster and Aber 2003). In such cases, list the year in “References cited” after the author’s name and enter “Forthcoming.” after the publisher, if it is a book (e.g., Foster DR, Aber J, eds. 2003. Forest in Time. Ecosystem Structure and Function as a Consequence of 1000 Years of Change. Yale University Press. Forthcoming.), and for a journal article where the volume and page numbers would be listed, had the article already been published (e.g., IWC. 2003. Report of the scientific committee. Journal of Cetacean Research and Management 5 (suppl.). Forthcoming.).
  • If the date of publication is not ascertainable, use “forthcoming” in the in-text citation: “(Heip et al. forthcoming).”

• Cite a full reference in the text as follows (when a References cited section is not used):
  • For in-text citations of court cases, please note the use of punctuation: (Dycus v. Sillers, 557 So.2d 486 [1990]) or (Jeffries v. East Omaha Land Co., 134 U.S. 178 (1890)). (See Dykaar and Schrom 53(4) 2003, pp. 428–433.)

References cited

• Entries in the References cited section are listed alphabetically. If a particular author has multiple entries, written alone and with coauthors, the order of the entries is as follows:
  • Works written solely by the author in question are listed first; if there are several such publications, list in order by date of publication, oldest first).
  • Two-author references go before references with three or more authors, regardless of the date; references with two authors are arranged alphabetically.
  • References by three or more authors are arranged by date, oldest first.
  • For a book with more than 10 authors or editors, use the first author’s name followed by a comma and “et al.”
  • For journal articles or a chapter in a book, list the entire range of page numbers, for example: 1464–1467, do not list as 1464–67.
  • For journal articles in general, do not list the issue no., only the volume no.: BioScience 53: 703–714. If a season is listed, capitalize the season in parentheses: (Spring), etc.
• For book titles, technical reports, and all other book-length works, use title case (i.e., all words in the title are capitalized except prepositions, articles, and coordinating conjunctions [unless any of these are the first or last word in the title], for example, “On the Origin of Species”; use an initial capital letter for journal article titles, book chapters, and meeting papers, for example, “The historical roots of our ecologic crisis. Science 155: 1203–1207.”
• Use an initial capital for the first word after a colon, for example, “Smithsonian science: First class on a coach budget.”
• Do not list the total number of pages in a book.

Examples of references cited

Book

Book (edited)

Book (edition)

Book (volume)

Chapter in a book

Dissertation

In-press reference
Samson DA, Werk KS. 2003. Size dependent effects in the analysis of reproductive effort in plants. American Naturalist. Forthcoming. [Show year only if the author is reasonably certain about time of publication.]

Journal
For references to the journal *Philosophical Transactions of the Royal Society*, use “Philosophical Transactions of the Royal Society B”. Note that *Federal Register* entries are treated as journal entries and should use page numbers, not article numbers.

**Master’s thesis**

**Newspaper**

For newspaper articles accessed online, omit the "day, page number" and replace with an access date and a URL, as you would use with any other website (see below).

**Presented papers**

**Report**

**Website**
- In parentheses, show the date the site was last accessed—the date you checked to make sure the site was still online—and the URL, separated by a semicolon. Do not use ending punctuation.
- If the web page has a title:
- If the Web page has no title:
- Do not use “http://” in entries with “www”; retain “http://” if the Web page address does not include “www.”

Note: Data supporting article conclusions ordinarily should be published, preferably in an appropriate data repository, such as Dryad (www.datadryad.org), and cited; *BioScience* will consider justified requests for embargoes on the publication of data. Small data sets can be published as supplementary material (see below).
Tables, figures, and equations, and illustrations

*BioScience* style is to capitalize only the first word in figure and table titles (and subheads), except for proper nouns. For figures, put panel labels in the upper left corner if feasible. Construct tables without vertical rules. For more general guidelines on the construction of tables, see chapter 13 in *Chicago* (15th ed.).

**Tables**

- Tables must be formatted in Microsoft Word and will not be permitted as an image file.
- Keep all tables as simple as possible. They should be intelligible without reference to the manuscript.
- Each table should begin on a separate unnumbered page.
- General notes include any information that applies to the entire table, such as additional comments about data and definitions of terms. General notes begin with “*Note:*” (always singular, always italic).
- Specific notes apply to discrete parts of the table and are indicated by roman lowercase letters. The order of notes should be alphabetical and should correspond to the order in which a reader would encounter notes, reading from left to right, top to bottom.
- Source notes are expressed in author–date format if a list of references is given with the document. The full citation is included in the reference list. Source notes begin with “*Source:*” (always singular, always italic). If material is adapted from another source, please credit it to that source in source notes.
- Do not use vertical lines in the table; use horizontal lines above and below the column headings and before table notes.
- Table note order: Place table notes at the end of the table, in this order: general notes (*Note:*), source notes (*Source:*), abbreviations (*Abbreviations:*), lettered footnotes, p-values (denoted with asterisks).

**Figures**

- Figures should be easily comprehended without reference to the text.
- Axis labels and unit designators should be clearly marked, and all data should be in the same unit of measurement.
- If the figure is a photograph, please include a photo credit (Photograph: Photographer Name).
- Keep figure captions as short as possible. Often, text can be more easily presented in the article text.
- Spell out all abbreviations not parenthetically explained at the end of the caption. (Abbreviations: …)
- Note introducers (Abbreviations:, Photograph:, etc., appear in italics, along with the rest of figure caption).
• Callouts to multiple panes of a single figure are singular (e.g., figure 1a, 1b). The same applies to tables.

Equations and math

• When mentioning an equation in text, refer to it as equation 3, not equation (3), or simply (3).
• When “equation” is spelled out in text, it is lowercased and there are no parentheses around the equation number.
• Displayed equations are indented
• Not all displayed equations need be numbered; number only if the displayed equation is referred to later in the text. If numbered, the number is put in parentheses, flush right.
• Math operators (e.g., <, >, ~) appear as such only in two-sided equations, not in parentheticals or notes (e.g., abbreviations in tables or figures, approximate numbers in the text)

Illustrations

Artwork should suit the manner in which it will be published. Do not, for example, use colored bars or lines in a graph that will be published in black and white. Artwork submitted for publication should be of the highest quality, in vector-graphic format if possible, or with a minimum resolution of 600 dpi for line art and 400 dpi for photographs at 4 × 6 inches for figures intended to run within the article, and the same resolution at 8 × 11 inches for figures intended for the cover. Images for the cover of BioScience should have a vertical (portrait) orientation. Photographs (without text) should be submitted in .tif format. All other art should be submitted in .eps format. Please mark all figures, tables, illustrations, and equations with the author’s name and number them all chronologically.

Usage Misc.

A

ad hoc (itals)
as (avoid use as a conjunction to prevent confusion with its temporal sense. Same goes for while and since)
as such (avoid, except in cases in which one thing is being said to be another)
au courant (itals)
author (noun—do not use as a verb)
**B**
based on – used as an adjective ("on the basis of" is used as an adverb).

**C**
chapter (lowercase, to refer to, e.g., book chapters)

**D**
data (remember: plural)

**E**
Earth (capitalize only when referring as a name of a planet)
East Coast
ensure (except when referring to insurance)

**F**
figure (lowercase in textual citations)
former president Ford (no capital letter on former or president)
*From A to B* includes only two objects—that is, not *from A to B to C to D*... It’s usually meant as a range, not a path (i.e., it is not necessary that B happen for C to happen).

**H**
half-century
half-yearly (adj)
Hemisphere (Western, Southern, etc.)

**I**
impact (n—do not use as a verb)
indices (not “indexes”)
Jr. (Jr, without the period and after first and middle name initials, in “References cited”; no comma precedes “Jr.”)
judgment

L
likely – reserve for its adjectival use (when "probably" is not directly substitutable).
Long Term Ecological Research (LTER) Network; LTER program; LTER sites

M
Middle East
Mideast
mid-1980s

N
Neotropics (capitalized)

O
one-half (as in one-half hour)

S
-size (as in a “large-size problem,” not “large-sized problem”)
supplemental material (not “supplementary material”)

T
table (lowercase in textual citations)
twofold (for numbers11 and higher, use a numeral: for example, 21-fold)

U
UK (adj)
United Kingdom (n)
United States (n)
upon (reserve for cases in which one thing is physically atop another)
US (adj)

V
via – reserve for geographic uses ("through" or "by" are good substitutes in most other cases)

W
weaving (not "weaving together")
while (use only in its temporal sense; “although” and “whereas” are good substitutes)
website (take a similar lowercase approach for all other fused "web-" terms, such as webcam, webinar, webcast, webmaster, webpage, etc. Whenever "Web" appears in unfused form referring to the World Wide Web, it should retain the capital as a proper noun.

*Note: Change any British spelling to American, for example, *acknowledgement* becomes *acknowledgment*, *judgement* becomes *judgment*, *colour* becomes *color*. 