

A Beginners Guide to Writing Scientific Papers

Forword

The writing of a scientific manuscript is a mental exercise of structural thinking. It requires thoughtfulness, mental discipline and carefulness. In combination this can be painful hard work. Avoid sloppiness and jargon from the very beginning, immediately eliminate any inaccuracy that you notice, any spelling error, any formatting error that you detect while writing or proofreading. From the beginning try to structure a thought and write down exclusively clean and structured sentences. Only then you will develop the necessary skills that eventually will be extremely time-saving. If you follow these rules rigidly you may get to the point where the first draft is close to final. Although this guide features only few elements in scientific writing, rigorous adhering to the suggestions will be rewarding. Please inspect this text from time to time, language can be full of surprises!

Happy writing.

Yours, Manifold Schreiber

General Start - 14point rule

Writing clearly is a worthwhile goal for any scientist, at least any scientist who expects to publish in a major journal.

Writing well means presenting your argument and evidence in a clear, logical, and creative way. An interesting argument hidden in flowery prose is of no use to anyone.

Clear writing takes effort. Besides requiring knowledge of basic grammar and syntax, it requires a good ear, a sense of proportion, and an ability to critique oneself.

Ultimately, anyone who wants to write clearly needs to develop a critical sense. You need to be able to judge your own writing objectively and, putting aside the brilliance of the content, honestly evaluate its ability to communicate.

- 1. Determine what you're trying to say before writing it.** Figure out precisely what you want to say. This may sound obvious, but many do not bother to do it. Knowing what you want to say beforehand maximizes the odds of producing an organized, persuasive paper.
- 2. Think in terms of an outline.** To ensure a logical flow, start by making an outline (even if it's in your head).
- 3. Write direct sentences.** Have only one idea or point per sentence. Keep sentences simple and short. Use two sentences rather than joining them with "and".
- 4. Be brief.** Conciseness is important in writing research papers. Learn to look for long phrases that can be shortened.
- 5. Organize your thoughts.** Be sure that every paragraph has a clear topic sentence and that the paragraph content supports the topic. Remember, the goal is to report your findings and conclusions clearly, with as few words as necessary.

6. Substitute action verbs for "to be". "To be" is an important verb, but it weakens the text when used excessively. For example, think about changing "is a summary of" to "summarizes".

7. Be sparing with adjectives & adverbs. Try to remove unspecific modifiers such as "very," "extremely," "interestingly", and "highly". When you do use modifiers, make them as specific as possible.

8. Be as precise as possible. Avoid phrases such as "a number of" and "a quantity of". If you can, replace these with a word such as "many," "few," or "some," or, even better, the actual number.

9. Avoid unnecessary constructions and prepositions. Phrases such as "It is clear that" and "The fact is that" are empty verbiage. Assuming you believe what you are about to say, just say it.

The same is true for prepositional phrases such as "In order to" or "In an attempt to." "In order to understand this reactions, we . . ." is better said as "To understand this reaction, we. . ."

10. Look for omissions. Did you forget an essential sentence or two in your conclusion that explains your thought processes to someone who doesn't think about these issues every day?

11. Look for repetitions. When you see the same word used repeatedly, consider using synonyms. Although repeating a word or phrase is sometimes effective rhetorically, it can also make your sentence structure clumsy.

12. Write as you speak. Wherever possible, use words you ordinarily speak and hear. If you can't hear yourself saying it, then don't see yourself writing it.

13. Leave it alone for a while. Of course, there's not always time, but do this whenever you can. You will be surprised how many flaws will appear in your manuscript when you put it aside for a while.

14. Edit, edit, edit.


Details


1. Save words

- No phrases like:


-  the next highly interesting result was obtained...

-  As shown in Fig. 3, the sky was blue (*do not use extra words to refer to an illustration*).


 The sky was blue (Fig. 3).


-  The data of the analysis on cell cycle parameters are shown in Fig. 1.

They have revealed that the cell cycle is advanced by factor X...

 Factor X advances the cell cycle (Fig. 1), indicating that ...

- Be simple and brief:

-  „The most frequent among its localizations is the nuclear one.“

 „It is mostly localized in the nucleus.“

Also: Unnecessary Words

A sentence should not contain unnecessary words. In scientific manuscripts precise writing is especially important because of the emphasis on conveying quantitative information efficiently. In reporting and recording research, try to be as accurate and precise in describing as in conducting the research.

Following is a list of words and expressions that are useless or incorrect in scientific writing, with suggested alternatives. This is not a complete list but contains some of the most troublesome words most frequently found in scientific manuscripts.

Don't use	Better
based on the fact that	Because
for the purpose of	for / to
fact	evidence
prove	support
plays an important role	is important because
decreased number of	fewer
time period	time
longer time period	longer
brown in color	brown
round in shape	round
a number of	some
has been shown to be	is

by means of	by
it is possible that	may
in order to	to
during the course of	during
a majority of	most
a great number of times	often
in other words	thus / hence / therefore
despite the fact that	although
first of all	first
it is interesting to note that	<i>eliminate</i>
it may be reasonable to suppose that	<i>eliminate</i>

To ensure accuracy and preciseness in your writing:

- Use an English spelling checker
- Make sure you use words according to the precise meaning understood by the average person.
- Ideally, check whether every word could be deleted or replaced by a better one.

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Effective Use of Grammar and Style in Scientific Writing

Grammar and style are very important and helpful in meeting the writing process goal of ensuring the clear communication of ideas.

Grammar includes any writing problem for which there is a definitive right or wrong answer. Errors in grammar disrupt and confuse readers, making your meaning unclear.

Style includes any issue that is a matter of preference. Each journal has its own expectations about what's appropriate in writing. Some journals differ dramatically in what stylistic choices are acceptable.

Below we list some common grammar and style issues. There are, of course, many more.

Grammar

It is important that your manuscript be written in correct English grammar. **Most journals will reject a manuscript if it is not written in correct English**, even if the content is worthy of publication.

Subject-Verb: The correct form of a verb is determined by the subject of the phrase and not the noun that precedes the verb. Place the verb as close to the subject as possible.

Again!!! Which versus That: “That” introduces essential information, but phrases that begin with “which” give additional, nonessential information and are set off by commas.

Dangling and Misplaced Modifiers: Be sure modifiers actually modify what they are intended to modify. Keep modifying phrases as close as possible to the word they modify to avoid distorting the meaning of the sentence.

Verb tense: Use the past tense for the Materials and Methods, and the Results. Use the present tense to describe established experiments and data that exist in the literature. It is important to check the journal's requirements.

Articles: Most nouns in English are preceded by an article (e.g., “a,” “an,” “the,” “several”) every time they are used. This applies to nouns directly preceded by an adjective. However, there are instances where no article is needed. There are many contradictory elements of English grammar.

Comparative terms: Comparative terms are words and phrases such as, bigger, smaller, more, less, etc. Sentences containing a comparative term without completing the comparison are meaningless.

Split Infinitive: An infinitive is made up of two words, usually the word “to” in front of the bare verb, such as “to measure”. A split infinitive puts an adverb between the two parts of the infinitive. “To carefully measure” is a split infinitive. “Carefully” splits “to measure.” As a general rule, you should avoid splitting infinitives.

Style

Most journals require their own writing style. The author guidelines usually explain in detail the journal's requirements. Here are some general tips for ensuring you adhere to the journal's requirements.

Tone: Your writing, depending upon the journal's style or your audience, should be either formal and structured, or informal and loosely organized.

Passive vs. Active Voice: Many journals believe the passive voice is more objective and, therefore, more suitable for scientific writing. However, we suggest using the active voice wherever appropriate. You should check the author guidelines or review some of the journal's articles to determine the journal's style.

First vs. Third Person: If there is one stylistic area where scientific disciplines and journals vary widely, it is the use of first vs. third person constructions. Limit your use of first person construction (i.e., " I (or we) undertook this study).

Abbreviations and Acronyms: An abbreviation or acronym is justified only if the full expression is excessively long or if the abbreviation is well known to all researchers in the discipline. When using an abbreviation or acronym, define it in parentheses the first time it is used.

References: It is very important to make sure all references are cited in the text and in the required format.

Numbers: Numbers should be spelled out when they begin a sentence.

Wordiness: Words that don't enhance content or meaning may bog down the reader. Effective writers use as few words as possible to convey precisely their information or ideas.

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Consistency

Be consistent in definitions. Always use the very same term for the same thing, the same procedure, the same context or the same item (a clone, a cell line, a gene, gene family, etc.)

3. Structure

Write a step by step procedure in a logical order.



- . . .adding the phages after three washes...



...was washed three times, then phages were added...

Describe things always in the same order you have started with. If you have started A, B and C it is only confusing if you use in the next chapter a B, A, C order. In describing several observations that are at the same "level", always use the same sentence structure, do not invert sentences.

4. Redundancy; new to you

Do not repeat the same opinion, argument, or fact by successive sentences to try making something more clear to the reader, instead use the most precise phrase, and only **once**.

⇒ sometimes you detect something in the literature that is new to you. **BE AWARE:** This might not be new to the reader of your paper. So don't go into any more detail on this than if it would be known to you.

5. Emotions

No emotions/ personal feelings

(avoid words like: surprising, interesting, astonishing, )

6. Uncertainty

Use only one degree of uncertainty per sentence.




- This *appears to indicate* that factor A *possibly may* have a *tendency* to interact with factor B.



This *indicates (suggests)* that factor A interacts with factor B.

7. Ambiguous terms

Avoid ambiguous terms, be precise!

No: quite, as described above, aforementioned, very, rather, described above, described below,  fairly, relatively, comparatively, several, much, a lot, a couple, further down, some, several, markedly.... ; for “significantly” see #21

8. Spellings

Use a good dictionary (i.e. Webster's) to check spellings. Be careful to use the right spelling from the first draft.

9. Comma

There are three occasions where comma is appropriate:

- a. A comma is used when the subject changes.

...the slides were washed, and the phages were dropped....

- b. Try to understand the difference:

- Those bacteria that were purified were all resistant....

(no comma)

- The neomycin resistant bacteria, which can be selected by growing them on agar plates containing antibiotic, all should contain the neo^R-plasmid (the „which“ following the comma is an explanation).

- c. “,respectively, “ ; but be careful to use this word in a way that is correct

⇒ Otherwise try to avoid the use of a comma.

10. Paragraphs

Order one coherent thought into one paragraph. Use a logical order of thoughts. Avoid repetitions.

And remember: one sentence does not make a paragraph!



11. Style

This term is often confused with lyrics. There is only one style in scientific writing: It is dictated by precision in expressing what you want to say using as few words as possible. This requires discipline and concentration. Because this is hard work, the fewer words you use the better it is for you.

Follow four rules:

- be simple and concise
- make sure of the meaning of every word
- use verbs instead of nouns e.g.



Precipitation of DNA was achieved by the addition of alcohol



DNA was precipitated with alcohol

- **check each sentence: does it provide the information in a way that it is not misunderstood?**

12. Possessiveness

Do not use possessive pronouns! Avoid



- we, we, we, we, we, I, I, I, I, I, our, us,



Just present the facts!...previous studies have shown (Ref.)...




- ...this gene localizes in our contig




...localizes to the contig previously published (Ref.)...


13. Importance


Some authors have a tendency to point out that their work is extremely important. Some readers, and **reviewers** alike, are annoyed by this habit. It is actually better to avoid phrases like

-  ...we have found for the first time...

-  ... this study presents additional (or similar) information....

-  ... we were the first to report....

-  ... we have for a long time predicted and now we have shown...

-  ... this study confirms our previously published ideas ...

No self-adulation!!!

14. Emphasis

Be careful to use (especially when repeated):


-very

-extremely

-strong evidence (what is the difference to just "evidence"??)

-exact (is your work not always "exact"??)

15. Alluding to other sections in the manuscript

-  „...as described above/before..“

„...as will be described later..“

16. Results

The main sentence should not address what you are doing, it is reserved for the result/observation/finding. The „doing“ should be dealt with unter „materials and methods“.

Remember: Result section should deal with results only – also avoid extensive interpretations.



„The resulting phages were analysed. They showed ...“



„Analysis of the resulting phages showed!“

17. Discussion

Do not refer to original data or illustrations. Instead, use a discussion style where you refer to data only in an indirect way, not in a main sentence.



(fig. 3)

Do not repeat data in the Discussion.



Our analysis had revealed that 20% of the chromosomes were broken. Additionally, in 10% of the broken chromosomes the gene X was mutated. This shows that there is a preferential ...



The incidence of 20% broken chromosomes of which 10% had gene X mutations shows a preferential...

No data in the main sentence.

18. Nomenclature

General: species and all Latin derivatives are in *italics* (*in vivo*, *post mortem*, etc.)


Human genes: all caps and *italics* (*MYCN*)

Mouse genes: first letter cap, rest lower case, *italics* (*Brca 2*)


Proteins: first letter cap, rest lower case, *no italics* (*Brca 2*)


Restriction enzymes: check supplier, but usually it is a combination of *italics* and *none italics* (e.g. *BamH I*).

19. Miscellaneous

-  ...a number of genes have been ... (often used, but incorrect, subject is singular)


 ...many genes have been....

-  ...single clones were obtained and cell lysates prepared ... (don't omit the verb when subject changes)

 ...single clones were obtained, and cell lysates were prepared

20. Title of a manuscript

-should always contain a take-home message, featuring the most important result

 avoid meaningless terms like „Analysis“ of...

“Significance” of.....

“Role” of.....

“Effect” of.....

also more recent doing-terms, like “Profiling.....” or “Modeling.....”

Doing science without achieving a meaningful result is hardly worth publishing. *It makes sense to announce this result in the title!*

21. The word “significantly”

--- be careful, this means that you have done a statistical test and have calculated a p-value!! Should be restricted to Figure Legends and illustrations. In the text, give approximate values for differences between parameters, like “A was approximately 5-fold higher than B”.

22. Tense

general rule is that only the “experimental aspects” should be past tense, i.e.

- was mixed

was precipitated

was inspected

appeared as round particles

was higher than

-etc

but

from this we conclude

23. Nonsense fill – ins

Avoid uninformative fill-in wording!



Indeed.....

It is noteworthy to mention.....

On the other hand.....

It is of interest – important- to note.....

It has been recently shown..... (simply present the fact, with ref.)

Experimental studies have shown.....

Aforementioned

Any other of this type

24. Designing an effective title

The title defines the contents of your manuscript in as few words as possible. An effective title "sells" your manuscript to the reader immediately and influences whether or not a reader will read the manuscript.

The title is essential in bringing your manuscript to the readers' attention, especially where the database being searched does not include the abstract of the article. It should include all essential words in the right order so the topic of the manuscript is accurately and fully conveyed. An excellent title is the key to ensuring your article will be found. An improperly titled paper may be lost and never reach its intended audience.

Your title will be read by many more people than the rest of your manuscript. Indexing services will use the title to categorize your paper. Authors who cite your paper will include the title in their list of references, which, in turn, will be read by thousands of readers.

1. Write the title early in the writing process and critique it the same as any other section of the manuscript.
2. A title should be the fewest possible words that accurately describe the content of the paper (the recommended length is 10 - 12 words).
3. The golden rule is: Express only one idea or subject in your title.
4. Put an important word first in the title; do not start with : Analysis of....; A study of; Observations on.....

5. Use key words that highlight the main content of your manuscript and can be understood, indexed, and retrieved by a database search, and that give a take-home-message
6. Eliminate redundant words such as verbs and articles so the title functions as a label rather than a sentence.
7. Use simple word orders and common word combinations.
8. Be as descriptive as possible and use specific rather than general terms: for instance, include the specific drug name rather than just the class of drug.
9. Write scientific names in full, for instance *Escherichia coli* rather than *E. coli*.
10. Avoid using abbreviations and acronyms; they could have different meanings: for instance "Ca" for calcium could be mistaken for "CA", which means cancer.
11. Refer to chemicals by their common or generic name instead of their formulas.
12. Avoid the use of Roman numerals in the title as they can be interpreted differently: for instance, part III could be mistaken for factor III.
13. Do not use words such as "significant" or "important", which are considered too strong, state your conclusion too boldly, and trivialize your manuscript by reducing it to a one-liner.

14. And avoid any of the following:

Effects (or Influence) of substance X on.....

Analysis (or Inspection) of 54 tumors for.....

Profiling of 67 tumors.....

Importance of substance X for.....

Differential expression of XX-proteins in.....

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And responding to Editors and dealing with Reviewers Comments

After submitting your manuscript, you will receive a letter from the journal's editor containing comments from the different reviewers, whose identities are normally kept confidential. The letter will either reject or provisionally accept your manuscript.

If the editor has rejected your manuscript, there will usually be reasons given for the decision. If that is the case, you need to assess the reviewers' comments to determine whether your manuscript might be accepted if you made certain revisions. In the majority of cases, the editor and

reviewers will be trying to help you produce a high quality manuscript.

Do not take the reviewers' comments personally. In some instances it might be bad timing. The journal might have just accepted or published a similar study. You can always submit your manuscript to another journal. If you do, it is usually best to take the reviewers' comments into consideration. Even if you feel that the reviewers have misunderstood something in your paper, others might do the same. If the editor believes that the subject of your paper falls outside the scope of the journal, there is no point in challenging this. You have no choice but to submit your manuscript to another journal.

If your manuscript has been provisionally accepted, you now need to plan a strategy for revising your paper and gaining full acceptance. This will include resubmitting a revised manuscript and responses to the reviewers' comments.

The following will assist you in responding to the reviewers' comments and resubmitting your manuscript:

1. Read all of the comments from reviewers and the editor.
2. Never respond immediately. Allow yourself a few days to reflect on the comments.
3. If the comments from the editor and reviewers can be used to improve your manuscript, by all means, make those changes.

4. If your manuscript was rejected and you still feel that your work deserves publication, send it quickly to another journal. Some data can become less relevant if too much time passes.

5. If your manuscript has been provisionally accepted, it is a good idea to respond promptly. As soon as possible, begin drafting a polite, thoughtful, clear, and detailed response.

6. Be polite. Avoid a defensive or confrontational tone in your response. The goal is to extract helpful information from the comments, adopt any useful suggestions to improve your manuscript, and calmly explain your point of view when you disagree.

7. Respond completely to each comment in an orderly, itemized manner, and, if necessary, copy and paste into the letter any substantive changes made to the manuscript. There is no limit on the length of your response. Most editors are willing to read a long and complete response.

8. Change and modify your manuscript where it makes sense. You are not required to make every suggested change, but you do need to address all of the comments. If you reject a suggestion, the editor will want a good reason with evidence supported by references. Just because you prefer it your way is not a good enough reason.

9. Reviewers do not always agree with each other, in which case you must make a choice. Decide which recommendations seem more valid, and note in

your response letter to the editor that you received conflicting advice and made what you think is the best choice.

10. If the reviewer is obviously wrong and has made a mistake, you are entitled to provide an argument and provide facts that can be referenced.

11. Sometimes you are asked to reduce considerably the length of the manuscript. You must not feel too attached to your words and should shorten the manuscript.

12. Ensure that what you say you have done to the manuscript, has in fact been done, and do make sure you follow the journal's guidelines. Editors become irritated when they find that comments made in the response letter do not match what is in the manuscript.

The process of getting a paper published in a scientific peer-reviewed journal is a challenging but rewarding one, once all your hard work finally pays off and the reprints arrive.

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REJECTION of Manuscripts

Manuscripts submitted for peer review publication may be rejected for a number of different reasons, many of which are avoidable.

The reasons for accepting manuscripts are not the

mirror image of the reasons for rejecting manuscripts. The main reasons for accepting manuscripts are: their contribution and relevance to the field, excellence of writing, and quality of the study design.

Many journals expect reviewers to assess the scientific merits and validity of research in submitted manuscripts; however, reviewers can become critical of manuscripts containing numerous language errors, which are difficult to eliminate without careful editing. Scientific writing demands both good science and well written manuscripts. Even a poorly designed title may influence the reviewer's opinion from the very beginning.

Following are the principal reasons why manuscripts are rejected. They are all equally important because reviewers tend to focus on different issues depending on their individual concerns and the journal's requirements.

1. Poor experimental design and/or inadequate investigation. An inadequate sample size, a biased sample, a non-unique concept, and scientific flaws in the study are common faults.
2. Failure to conform to the targeted journal. This is a common mistake. The focus of the manuscript is not within the scope of the journal and/or the guidelines of the targeted journal are not followed. This can easily be avoided by reading the targeted journal and reviewing the author guidelines.

3. Poor English grammar, poor style, poor syntax, even a poorly designed title.

Though poor writing may not result in outright rejection of a manuscript, it may well influence the reviewer's and editor's overall impression of the manuscript. It has been shown that a well-written manuscript has a better chance of being accepted.

4. Insufficient problem statement. It is important to clearly define and appropriately frame the study's question.

5. Methods not described in detail. Details are insufficient to repeat the results. The study design, apparatus used, and procedures followed must be made clear. In some cases it might be better to put too much information into the methods section rather than to put too little; information deemed unnecessary can always be removed prior to publication.

6. Overinterpretation of results. Some reviewers have indicated that a clear and "honest" approach to the interpretation of the results is likely to increase the chances of a manuscript being accepted. Identify possible biases and confounding variables, both during the design phase of the study and the interpretation of the results. Describe experimental results concisely.

7. Inappropriate or incomplete statistics. Using inappropriate statistical methods and overstating the implications of the results is a common error. Use an appropriate test and do not make the statistics too complicated. Quantify and present findings with appropriate indicators of

measurement error or uncertainty (such as confidence intervals).

8. Unsatisfactory or confusing presentation of data in tables or figures.

The tables or figures do not conform in style and quantity to the journal's guidelines and are cluttered with numbers. Make tables and graphs easy to read. Some editors may start by looking quickly at the tables, graphs, and figures to determine if the manuscript is worth considering.

9. Conclusions not supported by data. Make sure your conclusions are not overstated, are supported, and answer the study's questions. Be sure to provide alternative explanations, and do not simply restate the results.

10. Incomplete, inaccurate, or outdated review of the literature. Be sure to conduct a complete literature search and only list references relevant to the study. The reviewers of your manuscript will be experts in the field and will be aware of all the pertinent research conducted.

11. Author unwilling to revise the manuscript to address reviewer's suggestions. This can easily be resolved. Taking the reviewers' suggestions into account when revising your manuscript will nearly always result in a better manuscript. If the editor indicates willingness to evaluate a revision, it means the manuscript may be publishable if the reviewers' concerns could be addressed satisfactorily.

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Formal Aspects

English grammar and syntax are important in the writing of scientific manuscripts, but the use and presentation of numbers and statistics are just as important. The misuse of numbers and statistics can jeopardize the acceptance of your manuscript by the journal.

Numbers and data are the core of most scientific research. Although there are many ways to present data; every journal has specific guidelines for their use and presentation. Whatever style you choose, it is important to be consistent throughout the manuscript.

Statistics should be used to substantiate your findings and help you to state objectively your significant results. Statistics in text should include sufficient information, be reported accurately, and permit the reader to corroborate the analysis. It is always wise to have a Statistician check your work before submitting your manuscript.

The list presented here covers some general guidelines to which most journals adhere, but check with the journal to determine their specific guidelines.

Numbers:

Preferably use Arabic rather than Roman numerals.

Use the symbol ~ to mean: approximately equal to.

When beginning a sentence with a number, spell out the number. It is usually better to rewrite a sentence so you don't start it with numbers greater than ninety-nine.

When several numbers appear in the same sentence or paragraph, express them all in the same way.

Use numbers and words to express large numbers: a budget of \$1.2 million; 2 million kilometers.

Use hyphenation to reduce confusion when there is more than one modifier: fifteen 2-week-old mice.

Use arabic numbers for units such as weights, percentages, and time.

Put a space between numbers and units: for example, 75 kg. The exception: 75%.

Do not use leading zeros before a decimal point when the number cannot

exceed 1. For example, report $a = .05$. Do not use leading zeros before a decimal point when the number can be greater than 1. For example, report mean serum creatinine level = 0.973 mg/dl.

When you quote numbers, make sure you use the minimum number of significant digits or decimal places. For example, 23.7 years is appropriate but not 23.466 years; the loss of accuracy is not important because the measurement is not significant to the first decimal place. However 23.46 is correct because this measurement is accurate to the first decimal place.

Statistics:

Always report the mean (average value) along with a measure of variability (standard deviation(s) or standard error of the mean). Make sure the significant digits of the mean and standard deviation are consistent.

Summarize frequency data in the text with appropriate measures such as percents, proportions, or ratios.

For summary statistics (e.g., means, standard deviations), report one digit more than was present in the raw data. For example, if age is recorded to the nearest whole year, report the mean age to the nearest tenth of a year (e.g., mean = 54.3 years).

For percentages, the nearest whole percent (e.g., 25%) is usually adequate, although many journals prefer percentages to the nearest tenth of a percent (e.g., 25.4%).

For test statistics, such as chi-square statistics, t statistics, and F statistics, use two decimal place accuracy. For example, report t statistic = 2.56.

For P values, two significant digits are usually acceptable.

Show 95% confidence intervals for effect statistics like a correlation coefficient or the difference between means.