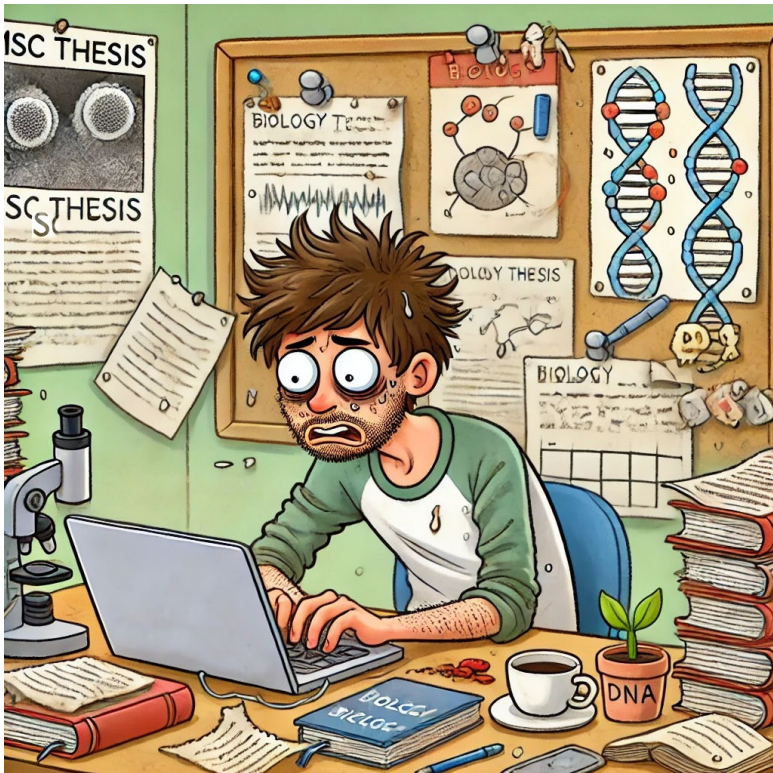




UNIVERSITY OF
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GUIDE TO WRITING YOUR ACADEMIC REPORT

And advice on the oral defence, conference
presentation and poster

THE TEN COMMANDMENTS

1. Follow the structure of a scientific article.
2. Ensure that the report is both comprehensive and concise.
3. Write clearly and unambiguously.
4. Employ direct and simple language.
5. Identify and delineate the problem statement and key messages.
6. Compose the introduction first, preferably before the investigation commences.
7. Convey the narrative with the support of figures, tables, and pertinent literature.
8. Present results and conclusions in a logical sequence.
9. Prioritize the discussion of results and conclusions according to their significance.
10. Proofread before submission.

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Preface

This guide has been prepared primarily to assist biology students – and potentially other students within the natural sciences – with advice on best practices and guidelines for composing academic reports. The recommendations may also be employed in the preparation of scientific articles later in one's studies. Finally, as an appendix, we have provided a few brief recommendations for the preparation of posters and the delivery of presentations.

The rationale behind this guide is that written communication is challenging – not only for students but for everyone. However, the task can be alleviated by adhering to a series of simple recommendations. Many students evidently struggle much more with written expression than with oral communication – even when composing their final thesis reports. It is rather peculiar that written communication appears considerably more demanding than its oral counterpart. In both instances, the objective is to “tell a story” as succinctly, clearly, and logically as possible, yet both logic and structure often deteriorate in the written medium. Consequently, students spend a disproportionate amount of time on report preparation, and, perhaps even more concerning, instructors must labor through one substandard report after another.

Written communication is an exceedingly important tool, regardless of one's future professional endeavors. Therefore, students should regard this skill as equally essential as the technical competencies provided by their studies. What is the benefit of being brilliant if one cannot effectively convey one's ideas to others? Written communication must thus be developed with care and patience. Every instance in which reports are incorporated into coursework should be viewed as an opportunity for practice. The additional time initially invested will prove immensely beneficial later, and the unpleasant experiences – such as thesis-induced depression due to writing difficulties or the frustration of dealing with supervisors who harshly reject written submissions – can be significantly mitigated.

At present, chatbots capable of producing reasonably coherent drafts on virtually any topic are proliferating. Much like the internet, they are here to stay. Although there is lively debate regarding whether their use constitutes academic dishonesty, they will undoubtedly become a widespread tool in the future. These tools are not infallible, nor are they based on logic and reflection; rather, they operate on probabilistic assessments derived from the vast amount of text available online. This implies that any generated text must be carefully scrutinized and revised through the student's own critical review.

This guide is not particularly detailed and may even be considered somewhat poorly written. For those seeking professional guidance, a wide range of books on the subject is available – simply search for “guides to scientific writing” online. There is no shortage of resources. Until then, we hope that this guide will prove both useful and, despite the admittedly exceedingly dull subject matter, somewhat enjoyable.

Our sincere thanks go to Kaj Sand-Jensen (Freshwater Biological Laboratory), Morten Foldager Pedersen (Roskilde University), and Claus Lindskov Møller for their comments and corrections on an earlier version of this guide. We have frequently gathered to share our frustration that even the most capable and intelligent students sometimes produce reports that are overwhelmingly poor, and we agreed that a guide was necessary. Here it is. We also wish to express our gratitude to all the students who, over time, have provided pedagogical examples of how a report should – and especially should not – be composed.

The Ten Commandments of report writing

1. Follow the structure of a scientific article.
2. Ensure that the report is both comprehensive and concise.
3. Write clearly and unambiguously.
4. Employ direct and simple language.
5. Identify and delineate the problem statement and key messages.
6. Compose the introduction first, preferably before the investigation commences.
7. Convey the narrative with the support of figures, tables, and pertinent literature.
8. Present results and conclusions in a logical sequence.
9. Prioritize the discussion of results and conclusions according to their significance.
10. Proofread before submission.

Report writing guidelines – The short version

The report should not exceed 10 pages, including figures and tables. It should be structured like a scientific article and, as much as possible, be written in a concise, precise, yet comprehensive manner.

Box 1

Structure of the report:

- Title
- Abstract
- Introduction
- Materials and Methods
- Results
- Discussion
- References

Title It should be brief, informative, and ideally appealing.

Abstract (max half a page) A succinct description of the purpose, the methods (i.e., what was done), the principal results, and the conclusions.

Introduction (1–2 pages) A brief overview of what is known about the topic, leading to the purpose and hypotheses of the investigation. The aim is to provide the reader with the necessary background to understand the questions and hypotheses addressed in the report. A clear and well-structured introduction also serves as an outline for the discussion.

Materials and Methods (1–2 pages) A concise and precise description that provides an overview of where the samples were collected, which samples were taken, how they were collected, how they were processed in the laboratory, how data were computed, and which statistical methods were employed.

Results (3–4 pages) Presentation of the findings. The most significant data and trends should be described. Raw data and detailed calculations should not be included in the main text but may be appended. The narrative is primary, while tables and figures support the text and aid the reader's understanding. Often, displaying results in a figure is advantageous, as visual representations are generally easier for the reader to assimilate than tables. The Results section must not include any elements of discussion.

Discussion (2–4 pages) This section should interpret the results and draw conclusions. The results must not be repeated. Instead, they should be evaluated in the context of existing knowledge (remember to include references) and compared with the expectations or hypotheses stated in the introduction. The discussion should conclude by placing the findings within a broader context and may suggest potential directions for future research.

References A list of all literature cited in the text.

The format of the report Report writing is increasingly integrated into the biology curriculum. Reports range from brief experimental protocols and short exercise reports to the extensive final thesis report. An experimental protocol is a schematic presentation of procedures and results without evaluative commentary, while the thesis report is a comprehensive document in which every aspect is thoroughly analyzed and evaluated. This guide primarily addresses the short project or exercise report, which, in purpose and format, closely resembles a scientific article. Therefore, these recommendations can also be applied when preparing articles later in your studies or after graduation.

Objective of the report Reports and articles serve to communicate the results of academic investigations – and, importantly, the conclusions and key messages – in as brief, clear, and unambiguous a manner as possible. The scientific article follows a rigid structure with non-negotiable requirements for documentation and detail, whereas the structure of a report may vary. The demands for detail, documentation, and thematic focus in reports are less stringent and can be adapted depending on the target audience. Nonetheless, for both types of publications, readability and clarity must be prioritized, and the text should be engaging and inspiring. It is not without reason that many researchers face early graying – and even shortened lifespans – due to the interminably dull articles (their own included) they are forced to read, as well as the countless hopeless reports that have burdened their lives.

Define the key messages The first task in preparing an academic publication is to clearly and unequivocally establish the key messages you wish to convey. If there are no clear messages to communicate, spare your audience the inconvenience – regardless of the pressure to publish. Had this simple rule been followed, an estimated 80% of all academic reports and articles would have terminated prematurely rather than emerging after arduous development. Naturally, this rule does not apply to reports that are mandatorily prepared as part of your studies. If you carefully formulate and prioritize your messages and determine their logical sequence, you will simultaneously delineate and structure your report, which is an enormous aid to the subsequent writing process.

Identify the target audience The next step is to determine the publication's target audience. Both the format and content depend entirely on whom you wish to address. If the audience consists of like-minded professionals, the publication should include the same level of documentation and detail that you used to reach your conclusions, assuming the reader possesses a certain academic proficiency. However, if the target audience comprises “laypersons” (for example, if you consider your grandfather as the prototypical recipient), the publication should be stripped of technical intricacies and tedious documentation. For exercise and project reports, choose your fellow students in the same field as your audience.

Use simple language Scientists and other professionals often resort to unnecessarily cryptic language and convoluted sentence structures. One might suspect that this deliberately inaccessible language is intended to distinguish the exceptional from the ordinary. While this strategy may make the author appear unique – if not overly self-important – it is not the usual goal. The aim is to communicate your messages to as wide an audience as possible. The better you can present complex material in a simple and clear manner, the more renowned and appreciated you will become.

Correct written expression is a challenging art that requires systematic and continuous practice. The more distant the reader is from you, the more challenging the task becomes, and the more important it is that your language is accessible. Even complex concepts can be explained simply and clearly with due care. Newspaper articles written by professional journalists provide excellent examples. Read a few articles focusing solely on the language, sentence structure, and length, and note how the primary messages are emphasized. It is an instructive exercise.

The language should be direct, simple, fluent, and precise. Inverted sentence structures, overly long sentences, parenthetical clauses, and text in parentheses diminish readability and should be limited, even though some variation can enliven the text. Technical terms, acronyms, and abbreviations can complicate reading. While standard terminology may be acceptable for an audience of peers, technical jargon should only be used for a broader audience when absolutely necessary and must be explained upon first use.

Readability is significantly reduced if the language is imprecise, forcing the reader to re-read sentences multiple times to grasp the intended meaning. A lack of precision often stems from overly complex sentence construction, assumed familiarity, or simple carelessness – such as neglecting to proofread for correct word choice and clarity.

Our final recommendation regarding language is that the article or report should be written in the past tense. Although the “historical present” may sometimes be employed, it often appears artificial and is more challenging to formulate. It is simpler to describe what was done and what was found. Additionally, the present tense can be used to clearly differentiate between the relationships discovered by the researcher (or others) and those relationships or statements that are generally accepted as valid.

Divide the text into paragraphs Dividing the text into paragraphs, much like constructing individual sentences, is crucial for the reader’s comprehension and overall overview. A paragraph should not contain more than one main idea or address more than one sub-question. Consider each paragraph as a small “story” with an introduction, development, and conclusion. Typically, a paragraph consists of several sentences and spans between 5 and 20 lines. It is poor practice for many consulting firms and public institutions to allow single sentences to stand as independent paragraphs, as this fragments the text and significantly reduces readability. Conversely, overly long paragraphs can be difficult to follow because they often contain multiple ideas or tangential reflections that may only be of interest to the author.

A paragraph should ideally appear as a natural and logical extension of the preceding paragraph. Its first sentence should introduce the reader to the paragraph’s theme or key message – either through a question or a statement that is subsequently elaborated upon. The paragraph should conclude with a summarizing statement, possibly followed by a subordinate clause that naturally leads into the next paragraph.

As outlined above, the report (and article) is divided into sections (e.g., Results, Discussion, etc.). These sections may be further subdivided with headings. The use of headings is a matter of personal preference; however, the shorter the report, the less necessary they are. Conversely, headings can be very helpful in longer reports that are later used as reference materials.

Proofread The final, yet extremely important, step in preparing a publication is to conduct thorough proofreading. Most spelling errors are detected by the word processor's spell-checker – so be sure to use it. However, proofreading must eliminate any remaining spelling errors, missing words, or imprecise formulations, ensuring clarity and simplicity. It is exceedingly irritating to read texts riddled with obvious mistakes that even a cursory proofreading would have caught. A reasonable reader might ask: why should we spend time reading something that the author did not even bother to proofread? Errors and carelessness not only affect the reader's mood and willingness to engage with the text but also negatively influence the instructor's evaluation. Therefore, everyone benefits from meticulous proofreading. For larger and more complex publications, it is also advisable to have others review the text before final submission, as it can be challenging to identify one's own errors and ambiguities.

The report must be of appropriate length The report should be exactly as long as necessary to clearly and comprehensively describe the subject, and no more than one page beyond that requirement. Exercise reports, aside from an optional title page, should never exceed 10 pages in total, and almost all projects can be succinctly reported in 15 pages or less. Thesis reports are often considerably longer but should generally be confined to 50–75 pages. There is a tradition in the humanities of producing excessively long reports – which should impose an additional burden on instructors – but this practice must not be allowed to prevail in the natural sciences.

Structure of the Report

Academic publications, with few exceptions, include the same basic elements: title, authors and their affiliations, abstract, background, methods, results, discussion, and references (see Box 1). The sequence and relative emphasis of these elements may vary considerably depending on the intended audience. We strongly recommend that the academic report adhere to the strict structure typical of scientific articles. This approach not only makes the process more manageable for the student but also compels them to argue logically and succinctly, carefully weighing their assertions. Moreover, it minimizes the risk of the reader becoming disengaged during the reading.

For more extensive investigations, it may be necessary to use a structure that divides the text into sections or chapters, each of which adheres to the structure of a short report. Conversely, a very short, popular publication should adopt a more narrative form, and the use of sectional divisions may be relaxed – provided that the overall logical structure remains intact.

Title The title should be concise, precise, and informative, allowing the reader to immediately determine the subject of the report (Box 2). Titles of academic articles are often written in a passive form, but they can be made more engaging by being framed as a question

or an active statement. The latter format, unlike the first two, reveals the study's findings, serving as an additional enticement to the reader.

The title, along with information about the authors and their institutional affiliation, may be placed on a separate title page. This page can be enhanced with an image or figure that captures attention through its aesthetics or content. However, juvenile drawings of supervisors depicted as stick figures holding a beer in a rowboat are strictly prohibited. Such illustrations signal a lack of seriousness, which will inevitably affect the reader's perception of the report's credibility. While academic articles and reports do not have to be dull, just as variations of the story about the nun and the sailor are best suited for oral presentations, childish drawings should be reserved for classroom blackboards and notebooks.

Box 2

The Title of a Scientific Report The ability of a title to engage the reader depends on the clarity and formulation of its message. Declarative or question-based titles are generally more compelling than passive ones.

- **Passive:** The significance of red deer rutting call strength for herd size and mating success.
- **Question-based:** Does the strength of red deer rutting calls influence herd size and mating success?
- **Declarative:** Louder rutting calls increase herd size and mating success in red deer.

Abstract The abstract should be brief (typically 10–20 lines and at most half a page) and provide the reader with a concise summary of the study's objectives, a general description of the methodology, the key findings, and the main conclusions (Box 3). The results and conclusions should constitute the majority of the abstract. Results should be presented primarily in a qualitative manner, with only the most essential numerical data included. References to the literature should be included only in exceptional cases.

Box 3

Structuring an Abstract The abstract should concisely, clearly, and objectively convey the study's purpose, approach, key results, and conclusions:

The aim of this study was to assess whether the strength of red deer rutting calls influences herd size and mating success. The number of hinds was recorded in 125 red deer herds during the rutting season (September–October) and compared with the call strength of the dominant stag. Mating success was evaluated through genetic paternity testing of all calves born to the observed hinds the following spring. Additionally, 52 stags were selected, half of which were fitted with a belt that reduced call strength. There was a significant positive correlation between rutting call strength and herd size, with a doubling in call strength leading to an approximately threefold increase in herd size. Stags with artificially reduced call strength had, on average, only half as many hinds in their herds as control stags. Mating success increased with herd size and, consequently, with call strength. However, the increase in mating success was smaller than the increase in herd size, suggesting that factors other than call strength also influence mating success. These results support the hypothesis that call strength primarily determines herd size and has a positive effect on mating success.

Introduction The introduction, alongside the discussion, is one of the most crucial sections of the report. It sets the stage by presenting the existing body of knowledge and establishing a logical sequence of questions and hypotheses that naturally arise from it. This section is where the reader must decide whether to continue reading or whether "Tintin in the Congo" might be a more fruitful way to spend the next hour.

A well-structured, clear, and logical introduction significantly facilitates the subsequent writing of the report. Investing considerable time and effort in crafting the "perfect" introduction is, therefore, highly beneficial. Conversely, writing the introduction at the end of the process and only then realizing inconsistencies in logic or missing measurements can be a painful experience – for both the author and the reader. To avoid this, we strongly recommend drafting at least a preliminary version of the introduction before conducting the study. This helps clarify the research questions, determine which measurements and analyses are necessary for obtaining testable answers, and identify any superfluous procedures.

The introduction should provide the reader with an overview of the subject, present the most relevant knowledge in the field, and clearly outline the research questions and hypotheses that the study aims to address or test (Box 4). Typically, the introduction accounts for 10–15% of a scientific article. A good approach is to begin with a broad yet concise description of the problem, guiding the reader toward the study's main theme. By the second paragraph – preferably the first – the overarching research question should be explicitly stated.

The introduction should not present all known information on the subject but should instead focus on the knowledge necessary for understanding the background of the study's questions and hypotheses. After posing the main research question, the existing knowledge and the

rationale for specific sub-questions should be presented in separate paragraphs. These topics and questions should be arranged in a logical and natural sequence, ensuring that the introduction also serves as a framework for the subsequent discussion section.

Box 4

Elements and Objectives of the Introduction The introduction should state the main theme and overarching research question of the report within the first, or at the latest, the second paragraph. In the case of red deer mating behavior, the introduction could begin by directly framing the research problem with reference to existing knowledge:

"Red deer stags seek to maximize reproductive success by gathering the largest possible harem of hinds during the rutting season. The stronger the stag, the larger the harem (Hirsh, 2001), but it remains unclear which factors most influence hinds' assessment of stag strength, particularly the role of rutting call strength (Stag & Hind, 2003). The aim of this study was to assess the significance of rutting call strength in determining harem size and mating success."

At this point, the stage is set, and the reader understands the research focus. The introduction should then provide an overview of the existing general knowledge in the field, followed by a progressively more detailed discussion of the background to the research question and its sub-questions. The second paragraph could present current knowledge on factors regulating the success of social deer species during the rut.

Next, the introduction should outline what is specifically known about red deer. This could involve three key elements: the strength of rutting calls, antler size, and the olfactory signals stags emit via various bodily fluids (with specifics left to the reader's imagination). The existing knowledge on each of these three factors should then be presented in separate paragraphs, leading to a dedicated section that formulates and argues the study's hypothesis regarding the role of rutting call strength.

Finally, a concluding paragraph may address additional nuances, such as the fact that mating success does not necessarily increase in direct proportion to harem size – since even dominant stags can become exhausted by excessive polygyny, or because larger harems provide young stags with greater opportunities for sneaky copulations.

The introduction should conclude by clearly stating the specific research questions or hypotheses and briefly outlining the approach taken in the study.

The introduction should conclude with a brief and precise specification of the study's research questions and hypotheses in a separate paragraph, making it explicitly clear to the reader what the study aims to investigate and why. While hypotheses do not necessarily need to be formulated as explicit null hypotheses, doing so can be helpful in student reports. At a minimum, the author must ensure that the hypotheses are clearly stated. This section may also include a brief explanation of the overall methodological approach. Alternatively, this information can serve as an introduction to the next section, which describes the materials and methods used in the study.

Materials and Methods This section is rarely an exciting read and can be regarded as a necessary but somewhat tedious part of the report. It should be as concise as possible while remaining comprehensive. The length of this section varies significantly depending on the nature of the study. It must provide a precise account of how the study was conducted, including the methods used, the equipment employed, and the calculations and statistical analyses performed. The description should be detailed enough to allow an assessment of the study's precision and robustness and to enable replication by other researchers.

The Materials and Methods section often begins with a description of the study area and locations, sometimes accompanied by a map. However, maps can take up considerable space and are often unnecessary. Like all other details, a map should only be included if it provides essential information for the reader. The site description may contain unexciting but necessary information on geography, geology, hydrology, and basic physical and chemical parameters. However, all the details provided must be relevant to the study.

Methods that have already been thoroughly described in other publications should be briefly summarized, with a reference to the original sources. Any modified methods or specialized setups should be described in more detail. The same applies to experimental procedures that deviate from standard protocols.

It is standard practice to specify the manufacturer, brand, and country of origin for advanced equipment in parentheses – for example, *anesthetic rifle (Model 2250, Winchester, USA)*. This allows the reader to assess whether the equipment used meets the necessary quality standards to ensure data reliability and also facilitates locating the same type of equipment for their own studies. For standard instruments and materials, it is sufficient to describe the measurement principle and composition.

This section may also include descriptions of calculation methods and should conclude with a specification of the statistical analysis tools used. More complex calculations can be illustrated by presenting a formula on a separate line, followed by an explanation of the symbols and their corresponding units. However, examples of calculations should not be included, and results should generally not be presented in this section. Exceptionally, results may be included if they are necessary for evaluating the methodology applied in the study.

Results The results section should provide a clear and comprehensive account of the processed data, ensuring that the reader gains an overview of all essential findings. Raw data and intermediate calculations should not be included in this section but may be presented in the appendix for the benefit of the author and the instructor.

To ensure clarity, results should be presented in a logical order, which does not necessarily have to correspond to the sequence of topics in the subsequent discussion section. The results should be presented in a narrative format that clearly conveys the study's findings to the reader. While key numerical data may be explicitly mentioned, excessive use of figures can significantly reduce readability.

Box 5

Figures and Tables Figures and tables should be clear, concise, and not overloaded with excessive information. They must include correct units and have brief yet comprehensive captions. Figure and table captions should be self-explanatory, allowing the reader to understand the presented data without referring to the main text.

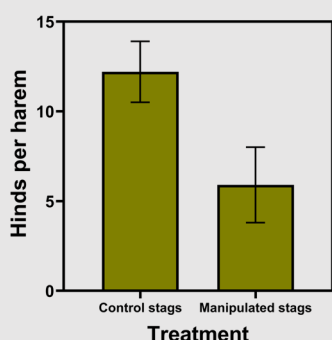


Figure 1. Number of hinds in harems of stags with experimentally reduced rutting call strength compared to unmanipulated control stags. Values are mean ± 95% confidence intervals.

Table 2. Number of hinds in harems of stags with experimentally reduced rutting call strength compared to unmanipulated control stags. Mean values ± 95% confidence intervals.

	Hinds per harem (mean ± 95% C.I.)
Control stags	12.2 ± 1.7
Manipulated stags	5.9 ± 2.1

Whenever possible, numerical data included in the text should be reported alongside their corresponding measures of variation, such as standard deviation, standard error, or confidence interval. All numerical values should be reported with the number of significant figures that the measurement methods reasonably support, which rarely exceed three. Unlike a calculator, which mechanically generates outputs with six, twelve, or even eighteen digits, many students only marginally improve on this by reporting four, six, or even ten digits—an approach that should be strictly avoided.

The text should be supported by figures and tables (Box 5). A common and serious mistake in reports is presenting data exclusively in figures and tables without accompanying explanatory text. Figures and tables serve only as supplements to the text, helping the reader verify the statements made and providing an overview and visual representation of data trends. Both figures and tables should be easy to interpret and should not contain excessive information. The same data should not be presented in both a figure and a table. If data can naturally be

represented in a figure, this format is preferable, as it allows for quicker visual interpretation. However, tables provide more precise numerical values. With the exception of general background data, all presented data or trends must be referenced in the subsequent discussion. Any figure or table that does not contribute to the discussion is redundant and should be eliminated.

Figures and tables must be accompanied by a descriptive caption – placed below figures and above tables (Box 5). The caption should provide a brief and clear explanation of what is being presented. It must be self-explanatory, meaning that a reader familiar with the report's title and objectives should be able to understand the figure or table without referring to the main text.

Results must be reported with appropriate units. Units are essential in scientific reporting and also serve as a critical tool during data processing. Every calculation should be accompanied by a unit analysis to ensure accuracy and to prevent common errors, such as confusion between μg , mg , and g , which can lead to mistakes by factors of 10^3 , 10^6 or more.

Units must be presented correctly, using exponents rather than slashes. For example, the unit for photosynthesis is sometimes written as $\text{mg C}/\text{mg chlorophyll}/\text{hour}$, which is mathematically incorrect. The correct notation would be $\text{mg C}/(\text{mg chlorophyll} * \text{hour})$. Such errors can be avoided by consistently using the format $\text{mg C} (\text{mg chlorophyll})^{-1} \text{hour}^{-1}$ without slashes.

The variability or relationships between results should be assessed and discussed in the text. Wherever possible, statistical methods should be used for evaluation. Statements such as "greater than," "smaller than," "different from," or "correlated with" must be accompanied by the relevant statistical method and p-value in parentheses – for example, (*Student's t-test*, $p < 0.01$). Proper studies and research projects should always be designed to allow statistical evaluation of the data. However, in laboratory exercises, time constraints or limited equipment may result in insufficient replication to permit statistical analysis. Do not overreact to this limitation – evaluate the data to the best of your ability and acknowledge any constraints in statistical reliability.

Discussion The discussion section should evaluate whether the formulated hypotheses can be confirmed or rejected based on the results and existing knowledge from the literature. To ensure that conclusions appear credible and logically sound to the reader, arguments should be presented in a clear and coherent order. This sequence has largely been established in the introduction, as the introduction serves as a framework for the discussion.

Interpretation of the data should be objective and self-critical. As the author of the hypothesis, there is an inherent – though not always recognized – bias toward finding support for one's own assumptions. Therefore, alternative explanations and methodological limitations should be actively considered to determine whether they undermine the study's conclusions. Likewise, results that contradict the hypothesis should be evaluated objectively rather than dismissed with superficial justifications. Although it may be difficult to accept, rejecting a hypothesis is just as scientifically valuable as confirming it.

A common mistake in discussions is treating all data as equally significant, regardless of their relevance to the overall conclusion. Even basic background data are sometimes compared with similar data from other studies, which is often unnecessary. The depth of discussion should be proportional to the importance of the data for the study's main conclusions. Ambiguous or weak results may require more space for evaluation than clear and unequivocal findings. However, the discussion should remain focused – excessive elaboration on minor results can dilute the key messages and exhaust the reader.

Another frequent error is the unnecessary repetition of results in different wording. In some cases, repeating critical results can help the reader (for example, when comparing values with those from the literature). However, as a general rule, results should not be reiterated, and there is no need to refer to figures and tables already presented in the results section. In rare cases, a discussion may include its own figure or table, but this should only be done for a specific, justified reason.

Finally, discussions sometimes drift into tangents – perhaps engaging in an academically sound yet irrelevant argument that does not align with the main objectives of the report. This often happens when an author has a personal interest in a particular topic and wishes to share their enthusiasm with the audience. Such digressions are difficult to recognize by the author and typically require external feedback to identify and eliminate. However, they must be removed, as they distract from the primary findings and conclusions.

The discussion section can be effectively concluded with a brief summary of the main conclusions, along with an assessment of their implications for the studied problem and related issues. Additionally, the conclusion may highlight new questions raised by the study.

Conclusion For reports covering multiple topics, it may be beneficial to include a separate conclusion section. However, in short articles, a conclusion section often becomes redundant, merely repeating the abstract. In such cases, conclusions should be naturally incorporated at the end of the discussion, as mentioned above.

If a separate conclusion section is included, it should be concise and should not introduce new discussion points or findings.

References The report should end with a reference list, enabling readers to locate the cited articles and reports for verification or further study. Different journals have specific formatting requirements for references, but all references must be complete and unambiguous. The full author list should be provided, including initials, publication year, full title, journal name, volume number, page numbers, and electronic reference if applicable. For books, the publisher and publication location should be listed instead of a journal name.

Most articles are now accessible online, and web-based sources may also be cited. If referencing online information, a direct link should be included in the reference list. Checking and formatting references is a time-consuming process. Therefore, using a reference management program can be highly beneficial, as it allows references to be

uploaded and automatically formatted according to the required citation style. Licensed programs such as *EndNote* are available, but several free alternatives also exist. It is essential to critically evaluate the credibility of cited sources. Information should be plausible, and students should be able to justify their sources. The internet and even scientific articles can contain exaggerations or outright errors, so a critical approach to referencing is necessary.

Acknowledgments Scientific articles and reports often include acknowledgments, where authors express gratitude for financial or technical support, as well as for contributions from colleagues. While acknowledgments should not be overly elaborate or ingratiating, they provide an easy and appropriate way to credit those who contributed to the study.

A humorous or informal acknowledgment – such as the subtle reference to a little-known Spanish elixir’s miraculous effect on fieldwork-related constipation found in a scientific paper – may amuse the authors but should generally be kept to a minimum.

Acknowledgments should not distract from the core content of the report and should be kept brief. They are typically placed in a preface in longer reports or just before the reference list in shorter reports.

The Poster

A poster is a written form of communication that often serves as an alternative to an oral presentation at academic conferences. While a poster can make an engaging and decorative contribution to an institute's walls, its fate is far less glamorous when displayed among 400 others at a symposium. The competition for attendees' attention is fierce, making the need for visual appeal and clear structure all the more crucial.

A successful poster must be visually attractive, with a layout that is easy to navigate, clearly separating objectives, results, and conclusions. The messages should be few, direct, and immediately comprehensible. Ideally, the poster should be legible from a distance of two meters and take no more than a couple of minutes to read.

Visual appeal is achieved through carefully chosen images, graphics, color schemes, and composition. The amount of text should be minimal, and the font size large enough to be readable – even for the aging professor who has misplaced his reading glasses in the fridge. The poster should have a striking, perhaps even provocative, title in large font. The names of the authors and their affiliations should appear below in smaller type. The purpose of the study must be stated clearly, followed by a brief explanation of the chosen approach. Details of materials and methods should either be omitted or kept to an absolute minimum. Results should primarily be presented as simple figures with concise yet informative captions, which may include partial conclusions. The overall conclusions should be stated clearly and prominently. References should be included only if absolutely necessary.

Creating a good poster is exceptionally difficult, whereas producing a poor one is surprisingly easy. The most common mistakes include overcrowding the poster with excessive information, using overly complex figures, including confusing tables, or failing to eliminate redundant content.

As may be evident, we are not particularly fond of the poster as a communication medium. We have attempted it ourselves, but we have never managed to create a truly decent one. However, we have seen many outstanding posters over the years, proving that it is possible. Moreover, designing a poster can be a valuable and rewarding exercise, as it forces the researcher to distill their study down to its most essential messages.

The oral presentation

As previously mentioned, many students tend to be more proficient in oral presentations than in written reporting. This is likely due to the fact that oral communication is practiced far

Box 6

Recommendations for a successful presentation There are many ways to effectively ruin a presentation. However, the most common mistakes and issues can be avoided with care, discipline, and thorough preparation.

Do not be nervous Easier said than done, of course, and the level of nervousness varies greatly from person to person. Personally, at the beginning of our career, we were – bluntly put – petrified every time we had to give a talk or even ask a question in a large gathering. The cure for nervousness is multi-faceted. First, recognize that all speakers – even the most experienced ones – feel a bit nervous before they begin. You are not alone. Next, ensure that your presentation is well-prepared and rehearsed – ideally in front of a mirror at home. It is particularly important that the beginning of your talk is completely solid. As the presentation progresses, nervousness usually fades. Finally, remember to take deep breaths and speak loudly so your voice does not shrink or falter. The best cure, however, is practice. The more presentations you give, the easier it becomes.

Memorize your presentation A speaker who monotonously reads from a script can bore even the most patient audience – including their own mother – to death. We strongly recommend writing a full script where the entire talk is drafted word for word, with key points marked in the margins. Initially, use this script to memorize most of the talk. Once internalized, the script can be set aside and used only as a backup or reference during the actual presentation.

Provide context and conclude with clear messages Offer a clear and comprehensive explanation of the background and key questions so the audience understands exactly where the talk is heading and why. Conclude with sharp and well-defined take-home messages, ensuring the audience feels their time was well spent.

Stick to the time limit Thorough preparation should also guarantee that you stay within the allotted time. At symposia, each talk is usually given a strict time slot – typically 12 minutes for the presentation and 3 minutes for questions and speaker transition (which may include someone tripping on their way to the podium). If you exceed your time, you risk being cut off mid-sentence, no matter where you are in your story. Carefully time your presentation in advance – better to finish a minute early than run over. Expect to spend between 30 seconds and 2 minutes per slide. It is frustrating for the audience when a speaker rushes through their talk, knowing they have too much material. It is outright pathetic – and a waste of everyone's time – when a speaker is interrupted before reaching their conclusions. Worse still, some may be so self-important that they take offense when cut off. Lack of structure and poor time management can, in rare cases, leave the audience with unforgettable memories – though they will forever regard the speaker as a fool.

more extensively in school than written reporting. Additionally, it often seems more natural for a speaker than for a writer to present their points in a logical and structured sequence. That being said, there is still room for recommendations (Box 9).

A presentation is where the story of the nun and the sailor truly comes into its own. Of course, one must avoid excessive frivolity and, in today's sensitive climate, ensure that the version and level of detail are appropriate for the audience. However, unlike reports or articles, a presentation allows for engaging surprises that, when placed correctly, can prevent the audience from slipping into a deep coma. These surprises should ideally consist of thought-provoking academic statements, while jokes or witty remarks should remain relevant and used in moderation.

While a presentation allows for greater flexibility in format, the requirement for clarity and logical progression is all the more stringent. Naturally, one begins by introducing the title of the presentation, followed by the background for the topic at hand. In short symposium talks, the background often takes up relatively more time (15–25% of the total) compared to the introduction in an article (10–15%). It is crucial that the audience knows exactly where the speaker is heading right from the start to maintain a clear overview. In longer presentations, it can be helpful to conclude the introduction with an outline of the key topics and their sequence.

The approach of the study should be presented briefly and clearly, just as in a report or a poster. However, one can often skip over detailed descriptions of methods unless they are essential to the narrative. Instead, the focus should be on the graphical presentation of results, accompanied by relevant commentary and partial conclusions. Unlike in written formats, presentations integrate results and discussion. It is essential that conclusions are clearly articulated in relation to each topic and that the presentation ends with a summary of the overall key messages.

Remember that what is said at the beginning and end is what the audience will remember and take away. If the introduction fails to clarify the purpose of the presentation, the audience may not understand the relevance of the conclusions. Likewise, if the conclusions are omitted or unclear, they may wonder why they did not simply stay home – or, perhaps more temptingly, step out for a cup of coffee right from the start.