

Last updated: June 25, 2024 [View the latest guidelines online](#)

Manuscript Submission Requirements Checklist

Correspondence should be addressed to the Editor-in-Chief at EIC@est.acs.org

- Cover letter
- Title: Titles should be clear and concise; they must match between manuscript file and electronic submission.
- Author list with affiliations: must match between electronic entry and manuscript file
- Abstract
- Manuscript File: Clean with no highlighting or comments and all changes accepted. Line numbers are not required.
- (Highly encouraged) Have a colleague in another field read as test for accessibility.
- Tables/Schemes/Figures: Text should be clear and legible, with fonts no smaller than 8 pt.
- Figures: must be labeled sequentially and match numbered references in article (manuscript and Supporting Information). Where appropriate, label all subsections by letter.
- Supporting Information (if any) must be included in the electronic submission.
- Table of Contents Graphic
- References: no specific format is required, but it must be sufficient to aid referees in their reviewing duties.

Journal Scope

[Environmental Science & Technology](#) (*ES&T*) is an impactful environmental science and technology research journal that aims to be transformational and direction-setting publishing rigorous and robust papers for a multidisciplinary and diverse audience of scientists, policy makers and the broad environmental community. For more than 50 years, *ES&T* has been a foundational focus for thought-leading, policy-changing contributions and will continue to serve as the home for significant, broadly relevant, and generalizable research that serves to inform decision-making. The journal advances rigorous scholarship on complex environmental phenomena, particularly with respect to fate, transport, and transformation in natural and engineered systems, while simultaneously facilitating the solution of critical environmental problems. In addition to novelty and significance of research, *ES&T* considers the relevance of submitted manuscripts to its broad readership.

ES&T has been at the forefront of the environmental science and technology movement, serving the environmental community as a top-tier, respected, reliable, and pivotal venue for exceptional, world-class environmental research across a broad and diverse range of environmentally relevant topics. Prospective authors are encouraged to review recent issues of [ES&T](#) to gain an understanding of the topics that are of greatest interest to the journal's readers, and they are expected to establish in their cover letters the relevance of their submissions to the *ES&T* community.

Note: Due to the volume of manuscripts we receive, *ES&T* is unable to accept pre-submission inquiries.

Thematic Section Headings

Current *ES&T* topical categories for research articles are as follows:

- Biogeochemical Cycling
- Bioremediation and Biotechnology
- Data Science
- Ecotoxicology and Public Health
- Energy and Climate
- Occurrence, Fate, and Transport of Aquatic and Terrestrial Contaminants
- Occurrence, Fate, and Behavior of Contaminants in Indoor Air and Atmosphere
- Physico-Chemical Treatment and Resource Recovery
- Sustainable Systems

These categories are periodically reviewed and may be changed.

Manuscript Types

ES&T accepts the following manuscript types: Research Articles, Features, Viewpoints, Reviews, Policy Analysis, Spotlights, Perspectives, Letters to the Editor, and Correspondence/Rebuttals. A full description of each manuscript type is shown below:

Research Article

Research Articles (length limit: 7,000 word-equivalents). Research articles in *ES&T* must report original research that is expected to have a definable impact on the advancement of environmental chemistry, science, technology, and policy. *ES&T* welcomes rigorous scholarship on complex environmental processes and phenomena, particularly those affected by human activities. This includes chemical, biological, and physical phenomena in natural and engineered environmental systems, as well as mathematical and computational methods that are directly relevant to the understanding, protecting, restoring, and managing of the natural environment, including eliminating, minimizing, and mitigating human impacts. The journal also publishes articles that describe significant scientific advances or novel technologies for facilitating the solutions of critical environmental problems, including pollution remediation, control, prevention, and avoidance. Papers in the area of ecotoxicology and human environmental health should provide novel information on effects of chemicals or lead to new insights into the mechanisms and processes underlying effects of chemicals and other stressors. *ES&T* also encourages submission of studies that address challenges associated with the "Replacement, Reduction and Refinement" of animal studies. At submission, authors must provide a [short synopsis statement](#) (approximately 20 words), placed after the abstract, stating the environmental relevance and significance of their research work. Authors are also expected to provide an explanation in their cover letter why they believe the manuscript belongs in *ES&T* and why their research will interest our readers with an emphasis on the novelty and environmental relevance of the contribution.

ES&T Expectations

ES&T strives to publish novel research of scientific significance and high environmental importance. Insufficient novelty is common reason manuscripts are declined. Novelty is defined as new experimental data, new interpretations of existing data, or new analyses of environmental phenomena that provide important new insights into environmental processes. Significance is judged with respect to the breadth of impact of the reported findings. Manuscripts that report data

of a routine nature or that address topics that are already well understood will not be considered. Whenever possible, research on new measurement technologies should include results with authentic environmental samples, and evaluations should be performed under environmentally realistic conditions. The expectations of manuscript novelty and quality are further described in the recent *ES&T* editorials '[Making Waves](#)' and '[Evolving Today to Best Serve Tomorrow](#)'.

ES&T Minimum Requirements

- All studies must clearly articulate the environmental relevance of the study to the broad *ES&T* community.
- Studies should provide novel insights into relevant environmental processes or mechanisms, i.e., studies that only describe the outcomes of standard laboratory or field tests or commercially available products are not appropriate for publication in *ES&T*.
- An assessment of uncertainty or sensitivity analysis should be included in reported data where applicable, with adequate quality assurance/quality control reported. New analytical methods should be thoroughly developed and quality ensured.
- Manuscripts should include evaluations performed under environmentally realistic conditions and concentrations. Concentrations should be reported as measured and not nominal. Ensure that key variables are measured and reported if relevant, e.g., pH
- Manuscripts on toxicity and ecotoxicity should include positive and negative controls, and consider multiple concentrations relevant to environmental exposures and/or a time-course study. Results should inform AOPs or mechanisms of action.
- The scope of the reported data in ambient monitoring studies must yield conclusions applicable to more than the particular site or time when the data were taken, i.e., findings should not be location specific representing a case study, but rather generalizable and/or transferable to other contexts.
- Studies on environmental contaminants should provide information that is clearly related to that compound's fate, transport, transformation and/or effects in the environment.
- Manuscripts on adsorption should consider kinetics as well as isotherms. First-principle models of mass transfer are preferred over purely empirical models.
- Manuscripts that emphasize chemical engineering, new catalysts synthesis or analytical chemistry must provide a concise argument that the research represents an advance that is of primary importance to the environmental field and include comparison to state-of-the-art approaches where appropriate.
- Manuscripts on novel materials (e.g., sorbents or catalysts) should demonstrate the materials have been tested under at least one environmental condition using relevant concentrations of target contaminant.
- Manuscripts on air quality and particulate matter should include adequate characterization of the particles relevant to the study.
- Articles describing advances in treatment technologies for remediation of contaminated environments or control of emissions should go beyond kinetics and treatability studies by exploring the mechanisms of the technology, or develop process models to describe the technique.
- If a manuscript proposes a new application, a general energy analysis or life-cycle assessment should be provided and compared against conventional methods.
- Articles that describe laboratory-scale studies should make meaningful and unbiased comparisons to existing approaches but should not make claims about the economics or relative advantages of the technology without pilot- or full-scale validation studies or properly validated models.

Manuscripts that report on initial findings of an urgent nature may be submitted to *Environmental Science & Technology Letters (ES&TL)*.

Research articles are reviewed initially by the Executive Editor team. If appropriate, manuscripts are then assigned to an associate editor for review, who may then, if appropriate, send the manuscript for full peer review by other scientists who assess the significance, originality, and validity of the work. The Editor-in-Chief, executive editors, and associate editors, listed in the *ES&T* masthead, make final decisions about all research material published in *ES&T*.

Feature

Feature articles (length limit: 5,000 word-equivalents) are written in a magazine or journalistic style rather than as a scientific article. This article type should provide a balanced examination of significant developments and issues affecting the environmental community. The assessment of timely topics from multiple perspectives—scientific, regulatory, technical—should provide readers with an authoritative and up-to-date understanding of the subject. Features will undergo peer review, with reviewers providing comments on the factual accuracy, clarity, and significance of the contribution. Prospective authors are encouraged to review already published Feature articles in *ES&T* to understand style and content. At submission, authors must provide a [short synopsis statement](#) (approximately 20 words), placed after the abstract, stating the environmental relevance and significance of their research work. Corresponding authors of accepted articles will also be requested to provide a short biography (up to 200 words) and headshot for inclusion at the end of the published article. Model release and copyright forms are required for author photographs and will be provided by the Journal office.

Viewpoint

Viewpoints (length limit: 1,000 word-equivalents + author affiliations + 5 references + 1 single-frame figure with 50-word caption OR a 350-word table) are short opinion-style manuscripts, written in the style of an opinion piece in a newspaper or magazine. They provide authors with a venue to comment on an issue of pressing importance to *ES&T*'s readership. Viewpoint articles should express an opinion of a clear scientific nature, based on rigorous scientific research in an environmental discipline. They should not be wholly political or summary in nature. Viewpoints should not include new scientific data. Viewpoints are not peer-reviewed but are reviewed internally by at least 2 members of the *ES&T* Editorial team. Corresponding authors of accepted articles will also be requested to provide a short biography (up to 200 words) and headshot for inclusion at the end of the published article. Model release and copyright forms are required for author photographs and will be provided by the Journal office. A TOC graphic is not required for this manuscript type.

Review

Review manuscripts (length limit: 10,000 word-equivalents) are thoroughly documented, forward-looking comprehensive assessments of particular areas in the environmental science and technology research domain. Reviews should increase readers' knowledge through discriminating analysis and insightful organization of the material. Reviews are not intended to consist of catalogues of prior research and must go beyond synthesis to include analysis. Factors considered when evaluating Reviews include the current and likely future importance of the field under review, thoroughness of the literature coverage, clarity of the presentation, and identification of future research needs.

Please note: Potential authors of Reviews must first submit a proposal and cover letter (via the *ES&T* submission site in the ACS Paragon Plus Environment). The proposal, to be uploaded as a

single manuscript file, should include the following details:

1. Proposed title
2. Author names and affiliations
3. Corresponding author's email address, profile on institutional website (if available), and Google Scholar, Web of Science, or Scopus profile
4. Abstract (length limit: 500 words)
5. Topical outline (length limit: three pages), indicating the headings of sections and subsections, a brief discussion of the proposed content of each section, and key references for each section
6. List of up to five of the authors' papers related to the review topic
7. List of key previous reviews on the subject in the past 10 years
8. Justification for the need for another review on the topic targeting the broader readership of *ES&T*

An assigned editor will issue a decision on the proposal, and in exceptional cases may be sent for peer review. If approved, the authors will be invited to submit a full Review for further consideration. If the full review is favorably received by the assigned editor, the manuscript will then undergo peer review.

Perspective

Perspectives (length limit: 4,000 word-equivalents) are personal reviews of a field or area, and they are focused, rather than comprehensive. Perspective authors are asked to assess the current status of a chosen field with an emphasis toward identifying key progress being made and research that is needed to advance a sub-discipline, theory, or technology. Perspectives should be based on scientifically sound statements with sufficient references and scientific underpinning to substantiate the views expressed. At submission, authors must provide a [short synopsis statement](#) (approximately 20 words), placed after the abstract, stating the environmental relevance and significance of their research work. Perspectives will undergo peer review. Perspective articles can be submitted directly through the *ES&T* submission site without prior approval. Corresponding authors of accepted articles will also be requested to provide a short biography (up to 200 words) and headshot for inclusion at the end of the published article. Model release and copyright forms are required for author photographs and will be provided by the Journal office.

Policy Analysis

Policy Analysis manuscripts (length limit: 7,000 word-equivalents) typically focus on the interface of science and engineering with public policy and provide new insight for understanding and managing human–environmental systems. Topics of particular interest include risk assessment, critical evaluations of environmental regulations, and environmental cost-benefit analyses. At submission, authors must provide a [short synopsis statement](#) (approximately 20 words), placed after the abstract, stating the environmental relevance and significance of their research work. Policy analysis articles will undergo peer review.

Spotlight

Spotlight articles (length limit: 800 word-equivalents + author affiliations + 5 references + 1 single-frame figure with 50-word caption OR a 350-word table) are short summary-style manuscripts to highlight a previously published paper in *ES&T* that has been influential in shaping global environmental policy and technology through its citation in policy papers, patents, or by receiving considerable international media attention. Spotlights should briefly describe the essence and

context of the research article presented, and how the work has been influential. Spotlight articles do not undergo external peer reviewed, but they are reviewed by at least two members of the *ES&T* editorial team. Corresponding authors of accepted articles will be requested to provide a short biography (up to 200 words) and headshot for inclusion at the end of the published article.

Letter to the Editor

Letter to the Editor contributions (length limit: 500 word-equivalents + author affiliations + 250 words of references) provide comments on the following already-published journalistic article types only: Features, Viewpoints, and Editorials (Comments). Letters to the Editor should be submitted within two months of the publication date of the original material. The author(s) of the original material will be given an opportunity to reply. If appropriate, both articles will be published in the same issue. These articles are not peer reviewed.

Please note: Contributors wishing to comment on research content (this includes Research Articles, Policy Analysis, Reviews, Perspectives, Correspondence/Rebuttals, and Additions and Corrections), please submit a Correspondence/Rebuttal.

Correspondence/Rebuttal

Correspondence/Rebuttal manuscripts (length limit: 1,000 word-equivalents each including citations) provide scholarly comment on papers appearing in the research section (Research Articles, Policy Analyses, Reviews, Perspectives, Correspondence/Rebuttals, and Additions and Corrections). Correspondence should be submitted within twelve months of the publication date of the original paper and must raise substantive scientific or technical questions. Well-justified exceptions to this timeframe will also be considered. Correspondence that consists mainly of opinion will not be considered. The author(s) of the original paper will be given an opportunity to prepare a response within one month of receiving the Correspondence. Correspondence on previously published Correspondence will not be considered, and personal invective will not be tolerated. Correspondence/Rebuttal may undergo peer review at the determination of the assigned editor. The correspondence and the rebuttal will be published consecutively in the same issue.

Special Issues

ES&T has a required template that must be completed for all proposals for special issues. If you would like to propose a special issue, please contact the managing editor via email: managing.editor@est.acs.org.

ACS Researcher Resources

While this document will provide basic information on how to prepare and submit the manuscript as well as other critical information about publishing, we also encourage authors to visit the [ACS Researcher Resources](#) for additional information on everything that is needed to prepare (and review) manuscripts for ACS journals and partner journals, such as

- [Mastering the Art of Scientific Publication](#), which shares editor tips about a variety of topics including making your paper scientifically effective, preparing excellent graphics, and writing cover letters.
- Resources on [how to prepare and submit a manuscript](#) to ACS Paragon Plus, ACS Publications' manuscript submission and peer review environment, including details on selecting the applicable [Journal Publishing Agreement](#).
- [Sharing your research](#) with the public through the ACS Publications open access program.
- [ACS Reviewer Lab](#), a free online course covering best practices for peer review and related

ethical considerations.

- [ACS Author Lab](#), a free online course that empowers authors to prepare and submit strong manuscripts, avoiding errors that could lead to delays in the publication process.
- [ACS Inclusivity Style Guide](#), a guide that helps researchers communicate in ways that recognize and respect diversity in all its forms.

Manuscript Preparation

Submit with Fast Format

All ACS journals and partner journals have simplified their formatting requirements in favor of a streamlined and standardized format for an initial manuscript submission. Read more about the requirements and the benefits these serves authors and reviewers [here](#).

Manuscripts submitted for initial consideration must adhere to these standards:

- Submissions must be complete with clearly identified standard sections used to report original research, free of annotations or highlights, and include all numbered and labeled components.
- Figures, charts, tables, schemes, and equations should be embedded in the text at the point of relevance. Separate graphics can be supplied later at revision, if necessary.
- When required by a journal's structure or length limitations, manuscript templates should be used.
- References can be provided in any style, but they must be complete, including titles. For information about the required components of different reference types, please refer to the [ACS Style Quick Guide](#).
- Supporting Information must be submitted as a separate file(s).

Document Templates and Format

The templates facilitate the peer review process by allowing authors to place artwork and tables close to the point where they are discussed within the text. Learn more about document templates [here](#).

General information on the preparation of manuscripts may also be found in the [ACS Guide to Scholarly Communication](#).

Acceptable Software, File Designations, and TeX/LaTeX

See the list of [Acceptable Software](#) and appropriate [File Designations](#) to be sure your file types are compatible with ACS Paragon Plus. Information for manuscripts generated from [TeX/LaTeX](#) is also available.

Cover Letter

A cover letter must accompany every manuscript submission. During the submission process, you may type it or paste it into the submission system, or you may attach it as a file.

In your cover letter, please provide a rationale for publication in *ES&T*, making the environmental relevance clear. A substantial fraction of submissions to *ES&T* are not sent out for review because

an editor concludes that the manuscript does not meet the journal's standards for novelty, scientific merit, or environmental importance. The cover letter is your opportunity to convince the editor that this is not the case. Citations of previous related work published within *ES&T* also can be useful to the reviewing editor.

The cover letter should list the authors and their affiliations, give the manuscript title, and provide complete contact information for all authors. If you have a non-preferred editor, you may explain your reason for making the request in your cover letter.

Manuscript Text Components

Assume *ES&T* readers are professionals who are not necessarily experts in your particular field. Spell out all acronyms on first use in the abstract and in the body of the article. *ES&T* does not allow footnotes, with the exception of an author information footnote on the title page and table detail/definition footnotes.

The various sections of the manuscript are described in detail below:

- Title and Authorship
- Abstract, Keywords and Synopsis
- Introduction
- Materials and Methods
- Results and Discussion
- Abbreviations
- Acknowledgment
- References
- Formulae and Equations

Title

Use a brief, specific, and informative title. Keywords in titles assist in effective literature retrieval. If trade names are used, give generic names in parentheses.

Authorship

List the full first name, middle initial(s), and last name of each author. Omit professional and official titles. An author's affiliation should be based on where they were when the work was performed. When the present address of an author is different, include the new information in a footnote. In a paper with more than one author, the name of the corresponding author, to whom post-publication inquiries should be addressed, carries an asterisk (*). Provide an email address for the corresponding author.

Many funders and institutions require that institutional affiliations are identified for all authors listed in the work being submitted. ACS facilitates this requirement by collecting institution information during the manuscript submission process in ACS Paragon Plus (Step 3 in Paragon Plus: Authors & Institutions).

Include as co-authors all those who have made a substantial contribution to the work. Addition or deletion of an author(s) after submission of the manuscript requires justification from the corresponding author and is subject to editorial approval. Deceased persons who meet the criteria for inclusion as coauthors should be included, with an 'Author Information' note, indicating the date

of death.

Abstract, Keywords, and Synopsis

Abstract

A 150–200-word clear and concise abstract must accompany Research Articles, Review, Policy Analysis, and Perspective manuscripts. As a one-paragraph summary, describe the purpose, methods or procedures, significant new results, and implications. Define any abbreviations or acronyms used in the abstract. Include major quantitative data if they can be stated briefly, but do not include background material. Do not include reference numbers in the abstract.

For Features, include a shorter 3–5 sentence Abstract, written at a level comprehensible to the scientifically literate general public. An abstract is not required for Viewpoint manuscripts.

Keywords

Research Articles, Policy Analysis, Reviews, Perspectives and Features must be accompanied by 5–8 keywords. Authors are encouraged to include significant keywords that do not appear in the title to expand discoverability and aid the reader in literature retrieval. The keywords are published immediately before the text, following the abstract.

Synopsis

A synopsis is a succinct, simple, non-technical statement (~30 words) articulating the environmental context and environmental impact of your research or policy. The synopsis is mandatory for Research Articles, Policy Analysis, Perspectives, and Features and must be present at submission. The synopsis should use complete sentences. The synopsis is NOT a repeat of the abstract or a description of the TOC/Abstract graphic.

Example of an *ES&T* synopsis: 'Minimal research exists on microplastics exposure from indoor air. This study reports microplastics at higher concentrations in indoor air and dust compared to outdoors with implications for human health.'

Introduction

The introduction should clearly and concisely explain the motivation for the work, its importance and originality, where it fits in the development of the field and why it should be of interest to *ES&T* readers. Discuss relationships of the study to previously published work, but do not reiterate or provide a complete literature survey. Current findings should not be included or summarized in this section. Introduction sections are typically around 500 words in length.

Materials and Methods

Describe pertinent and critical factors involved in the experimental work but avoid excessive description. Details not essential for understanding the paper can be placed in Supporting Information (SI). Specific experimental methods should be sufficiently detailed for others to repeat the experiments unequivocally. List devices of a specialized nature or instruments that may vary in performance or affect the quality of the data obtained (e.g., spectroscopic resolution), including

the vendor. If the procedures are already published, provide citations to previous publications and expand only on differences in the current work. Authors must emphasize any unexpected, new, and/or significant hazards or risks associated with the reported work and this safety information must be included in the Materials and Methods section.

Results and Discussion

Be complete but concise. Discuss your findings, postulate explanations for the data, elucidate models and compare your results with those of others. Avoid irrelevant comparisons or contrasts, any speculation unsupported by the data presented and verbose discussion. A separate conclusion is not to be used; any concluding statements are to be incorporated under Results and Discussion.

Abbreviations

Specialized abbreviations may be used provided they are placed in parentheses after the word(s) at first point of use. Do not include a separate Abbreviations list. Use SI units and consult the [ACS Guide to Scholarly Communication](#) for lists of SI units and preferred forms of commonly used abbreviations.

Acknowledgment

Include only essential credits to acknowledge financial or professional assistance to the conduct of research. Sources of financial support must be acknowledged. Omit academic and social titles.

Author Information

A section may be included, as needed, entitled "Author Information" to provide pertinent information on the authors, such as the names of authors who contributed equally to the article, or details of the date of death of a deceased author.

References

Literature references in *ES&T* must be numbered in order of appearance, and the corresponding numbers placed at the appropriate locations in the text as superscripted numerals. The accuracy of the References is the responsibility of the authors, who are encouraged to avoid references to works that have not been peer reviewed. DOI numbers are helpful but not mandatory unless they are the only identifying information available (e.g., for recently published articles). Excessive self-citation is not permitted. Any references in publications that would be difficult for most reviewers to obtain or are unpublished should be uploaded into the *ES&T* Paragon Plus submission site as Information for 'Review Only'.

Formulae and Equations

Chemical formulas should be embedded in the text at the point of relevance and should correspond to the [ACS Guide to Scholarly Communication](#). Chemical equations should be balanced and numbered consecutively along with mathematical equations. Mathematical arguments should be as brief as possible.

Components Described Elsewhere in these Guidelines

- [TOC/Abstract Graphic](#)
- [Funder Reporting Requirement](#)
- [Tables, Figures](#), and [Chemical Structures](#)
- [Web Enhanced Objects \(WEO\)](#)
- [Supporting Information](#)
- [Cover Art](#)

Supporting Information

This information is provided to the reviewers during the peer-review process (for Review Only) and is available to readers of the published work (for Publication). Supporting Information must be submitted at the same time as the manuscript. See the list of [Acceptable Software by File Designation](#) and confirm that your Supporting Information is [viewable](#).

If the manuscript is accompanied by any supporting information files for publication, these files will be made available free of charge to readers. A brief, nonsentence description of the actual contents of each file, including the file type extension, is required. This description should be labeled Supporting Information and should appear before the Acknowledgement and Reference sections. Examples of sufficient and insufficient descriptions are as follows:

Examples of sufficient descriptions: “Supporting Information: ^1H NMR spectra for all compounds (PDF)” or “Additional experimental details, materials, and methods, including photographs of experimental setup (DOC)”.

Examples of insufficient descriptions: “Supporting Information: Figures S1-S3” or “Additional figures as mentioned in the text”.

When including supporting information for review only, include copies of references that are unpublished or in-press. These files are available only to editors and reviewers.

Research Data Policy

All ACS journals strongly encourage authors to make the research data underlying their articles publicly available at the time of publication.

Research data is defined as materials and information used in the experiments that enable the validation of the conclusions drawn in the article, including primary data produced by the authors for the study being reported, secondary data reused or analyzed by the authors for the study, and any other materials necessary to reproduce or replicate the results.

The [ACS Research Data Policy](#) provides additional information on Data Availability Statements, Data Citation, and Data Repositories.

Data Requirements

Nomenclature

Use abbreviations and acronyms sparingly, and all usage should be defined at the first occurrence in the text. Whenever possible, use systematic nomenclature as recommended by IUPAC and IUBMB for chemical compounds and biomolecules, and SI units. The [ACS](#) and [IUPAC](#) websites have links to nomenclature recommendations. Usually, the chemical name or composition should be given in parentheses or in a reference at the first occurrence of such a name. Names of organisms should comply with genetic conventions, with genus and species names written in italics and spelled out in full on first appearance. Trademark names should be defined at the point of first use and registered trademark names should be capitalized whenever used. Registration marks are not required to ensure legal protection for the trademark. Trade and trivial names should not be capitalized.

Data Presentation

Data should be presented in a way that makes interpretation clear to the reader.

For more information on data presentation, see:

1. [Quantifying the Interactions between Biomolecules: Guidelines for Assay Design and Data Analysis](#)
2. [Beyond Bar and Line Graphs: Time for a New Data Presentation Paradigm](#)
3. [Reporting standards and availability of data, materials, code and protocols.](#)
4. MIQE guidelines for ddPCR and QPCR by [Bustin et al. 2009](#) and [Hugget et al. 2020](#); [EMMI guidelines by Borchardt et al. 2021](#)
5. [Best practice for 16S Microbiome studies](#)

Biological Assays

Exposure protocols and methods must be referenced or described in sufficient detail to permit the experiments to be repeated by other investigators. This includes for example information on the preparation of the test materials, medium components, and duration of exposure. In addition, the applied dose or dose range should be given in a meaningful unit and the relevance of the applied dose should be substantiated. Doses and concentrations should be expressed as molar quantities (e.g., mol/kg, mM, etc.), particularly when comparisons of potencies are made on compounds having large differences in molecular weights. The routes of administration of test compounds and vehicles should be indicated. Benchmarks should be included in form of appropriate positive or negative control substances or reference materials. Especially for studies on nanomaterials, assays should be checked for interference induced by nanomaterials, e.g., optical or chemical interference, masking of the analyte or other interference mechanisms by inclusion of appropriate controls. Also, for studies on nanomaterials, sterilization procedures and specification of dilution steps as well as the order of addition should be provided, and as far as possible, various measuring units related to dose (e.g., surface area, mass, particle number per surface area, volume, cell number) should be given to increase comparability with other studies. Data may be presented as numerical expressions or in graphical form. Statistical limits (statistical significance) for the biological data are usually required. If statistical limits cannot be provided, the number of determinations and some indication of the variability and reliability of the results should be given. References to statistical methods of calculation should be included.

Use of Human Subjects or Animals in Research

The American Chemical Society Publications rules and ethical guidelines provide mandatory standards of practice in experimental studies performed using biological samples obtained from animals or human subjects. Studies submitted for publication approval must present evidence that the described experimental activities have undergone local institutional review assessing safety

and humane usage of study subject animals.

Research Involving Animals

An indication that all animal experiments have undergone ethical review and were carried out with appropriate permissions or licenses from national or institutional committees that cover the research must be provided. Relevant details listed in the latest version of the [ARRIVE](#) (Animal Research: Reporting of In Vivo Experiments) guidelines should be given, especially the description of animals (e.g., source, sex, age, species, and strain), experimental design (e.g., number of groups, number of animals in each group, how animals were divided, and a flow chart of the study protocol) and procedures (e.g., drug or chemical formulation, dose, treatment time and frequency). The numbers of animals for each experiment used in the research should be clearly stated in the Materials and Methods section in manuscript and legends of relevant Tables and Figures. Justifications for the doses used in the research should be included, and where appropriate, the relationship between these doses and relevant environmental or human exposure or intake levels is encouraged to be provided.

Research Involving Human Subjects

Authors must provide a statement that study samples were obtained through the informed consent of the donors, or in lieu of that evidence, by the authority of the institutional board that licensed the use of such material. The institution's name and approved IRB number must be listed in the paper. Details listed in the latest version of the [STROBE](#) (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines and description of informed consent protocols must also be provided. Papers that include any aspect of Community-Based Participatory Research (CBPR) or citizen science must include information on practices employed to protect vulnerable populations

Database Deposition

Advancing scientific discoveries can be enhanced when data and materials are made available and readily exchanged. *ES&T* requires for all published articles that authors make materials, data, and protocols available to readers through deposition in a public database. A statement must appear in the submitted manuscript confirming submission of the data and indicating the data bank and any pertinent accession codes/ID.

To identify the repository that meets your particular needs, you may find [FAIR Sharing Databases](#), [Registry of Research Data Repositories](#), and [Repository Finder](#) helpful. Authors may also want to further investigate unstructured and/or large data repositories, such as [Dryad Digital Repository](#), [figshare](#), [Open Science Framework](#), and [Zenodo](#), or institutional repositories for depositing data. If there is no appropriate repository available, general publicly available repositories should be used.

In addition, ACS Publications' figshare houses all Supporting Information within the HTML presentation of the paper and at acs.figshare.com. Authors also agree to make available to interested academic researchers for their own use any materials reported in the manuscript that are not otherwise obtainable. Any restrictions to the availability of materials or information must be stated at the time of submission. The [ACS Math Style Sheet](#) and [NMR Guidelines](#) are available on ACS Researcher Resources.

Sequence Data

DNA and RNA sequence data can be submitted to suitable public repositories such as [GenBank](#), [European Nucleotide Archive \(ENA\)](#), the [DNA Data Bank of Japan \(DDBJ\)](#), [dbSNP](#), [dbVar](#), [Database of Genomic Variants archive \(DGVa\)](#), [MGnify](#), [miRBase](#), [NCBI Sequence Read Archive \(SRA\)](#), and [NCBI Trace Archives](#). Protein sequence data should be deposited with the [Protein](#)

[Identification Recourse](#) at Georgetown University Medical Center, Washington, the [European Bioinformatics Institute](#) (EBI), the [Swiss Institute of Bioinformatics](#), or [UniProt](#).

Omics Data

Manuscripts that present microarray data should follow the MIAME (Minimum Information About a Microarray Experiment) [guidelines](#). Data should be submitted to suitable public repositories such as [ArrayExpress](#), [Database of Interacting Proteins \(DIP\)](#), [dbGaP](#), [Genomic Expression Archive \(GEA\)](#), [Gene Expression Omnibus \(GEO\)](#), [IntAct Molecular Interaction Database](#), [Global Natural Products Social Molecular Networking \(GNPS\)](#), [MassIVE](#), [MetaboLights](#), [Proteomics Identifications \(PRIDE\) Archive](#), and [ProteomeXchange](#).

For sequence data and microarray data, the relevant accession numbers should be available at the time that the revision is submitted and should be listed at the end of the Materials and Methods section in the revised version of the manuscript.

Proteomics Data

Proteomic experiments must meet the standards established by the Journal of Proteome Research. More information is available in the [Publication Guidelines](#) for the Analysis and Documentation of Peptide and Protein Identifications. Protein sequences should be handled in the same way as described above, and accession number and database source should be included.

Computer Codes

When computer codes are developed or used and are an essential part of a manuscript, sufficient detail must be given, either within the paper or in the SI. Types of languages that are used in the computer codes, compiler/interpreter, and operating system with a specific version must be provided or properly cited. Upon request, after appropriate material transfer agreements to restrict the use of the materials so as to protect the legitimate interests of the authors, codes and input data must be made available for others to validate the calculations. Regardless of whether the source code is open or closed source, it must be properly cited in the References.

Computational Chemistry Calculations

When computational chemistry calculations are performed, input data—including force field parameters, equations defining the model (or references to where such material is available in the open literature), methods and approaches, and basis sets—must be given either within the paper or in the SI. If the software used for calculations is generally available, it must be properly cited in the References. References to the methods upon which the software is based must also be provided.

Materials

When requested, the authors should also make a reasonable effort to provide samples of unusual materials unavailable elsewhere, including, but not limited to, clones, microorganism strains, antibodies, computer codes, etc., to other researchers, with appropriate material transfer agreements to restrict the field of use of the materials so as to protect the legitimate interests of the authors. Any restrictions to the availability of materials or information must be stated at the time of submission.

Language and Editing Services

A well-written paper helps share your results most clearly. ACS Publications' [English Editing Service](#) is designed to help scientists communicate their research effectively. Our subject-matter

expert editors will edit your manuscript for grammar, spelling, and other language errors so your ideas are presented at their best.

Preparing Graphics

The quality of illustrations in ACS journals and partner journals depends on the quality of the original files provided by the authors. Figures are not modified or enhanced by journal production staff. All graphics must be prepared and submitted in digital format.

Graphics should be inserted into the main body whenever possible. Please see Appendix 2 for additional information.

Any graphic (figure chart, scheme, or equation) that has appeared in an earlier publication should include a [credit line](#) citing the original source. Authors are responsible for [obtaining written permission](#) to re-use this material.

Figure and Illustration Services

The impact of your research is not limited to what you can express with words. Tables and figures such as graphs, photographs, illustrations, diagrams, and other visuals can play a significant role in effectively communicating your findings. Our [Artwork Editing](#) service generates publication-ready figures that conform to your chosen journal's specifications. This includes changes to file type, resolution, color space, font, scale, line weights, and layout (to improve readability and professional appearance).

Preparing for Submission

Manuscripts, graphics, supporting information, and required forms, as well as manuscript revisions, must all be submitted in digital format through [ACS Paragon Plus](#), which requires an ACS ID to log in. Registering for an ACS ID is fast, free, and does not require an ACS membership. Please refer to Appendix 1 for additional information on preparing your submission

Prior Publication Policy

ES&T considers only original work for publication that has not been previously published and is not under consideration for publication elsewhere. Related work under consideration for publication in any medium must be cited in the manuscript and the Editor-in-Chief informed at the time of submission. In addition, an author must inform the Editor-in-Chief of prior dissemination of the content in print or electronic formats in the cover letter. Posting of pre-prints to a pre-print server such as [ChemRxiv](#), bioRxiv, arXiv, or applicable repository for their discipline where a DOI is issued, before the manuscript is accepted for publication is considered acceptable but requires citing of the pre-print. Authors may revise the preprint version of their manuscript up until a final acceptance decision has been issued. Please note the use of a pre-print server in the cover letter and provide a link to the preprint, and as appropriate, state how the manuscript has been adjusted/updated between deposition and submission. All other prior/redundant publication is forbidden. Failure to alert *ES&T* in your cover letter to any prior publication of your submission may be viewed as an ethical violation. Upon publication in *ES&T*, authors are advised to add a link from the pre-print to the published paper via the Digital Object Identified (DOI) that is assigned to the published article. Some preprint servers, including ChemRxiv and bioRxiv, include this link for authors automatically after publication.

Theses/Dissertations

Authors submitting material that has been used in their thesis/dissertation must contact the Editor-in-Chief for approval. Authors will be asked to confirm that they alone hold the copyright to the work and to read and comply with the [ACS dissertation policy](#) and the conditions and procedures laid out in the ACS Journal Publishing Agreement (JPA). Authors will also need to make arrangements with their degree-granting institution (and any repositories to which their thesis/dissertation has been or will be posted) to either delay posting of the thesis/dissertation or remove the material from the Internet until the final paper is published by *ES&T* (i.e., the work is considered under embargo). Exceptions to this are if the thesis/dissertation has been posted in a data repository providing a DOI which is citable (see Prior Publication Policy).

Authors wishing to include published *ES&T* material in their thesis/dissertation should follow the guidelines of the ACS dissertation policy. They must contact the Editor-in-Chief for permission, and properly cite and link to the published *ES&T* article. Permission requests for all ACS Journal materials are handled through the RightsLink service. Please see the [RightsLink instructions](#) for complete details.

Proceedings of Conferences and Symposia

Authors cannot publish presentations in proceedings (paper or electronic) that are copyrighted (except by ACS) and then submit them to *ES&T* due to copyright concerns. If the proceedings are not copyrighted, publishing a short abstract without figures or tables is permissible. It is the responsibility of authors to notify *ES&T* of any abstracts that have been published in any form.

Websites

ES&T will consider for publication a paper or presentation that has been posted on a website available to the general public, provided that the site is the personal site of the author and is not connected to a commercial site. Authors must notify the journal at the time of submission if the material has been available on the Internet or equivalent electronic media and must remove the material from the site at the time of submission. When the paper is published, authors may provide an electronic link from that site to the *ES&T* homepage. If the website is a commercial site not owned by ACS, the authors are advised that consideration of the paper may be endangered.

Reports

Authors must confirm that they alone hold the copyright to the report. If a government or funding organization requires posting of a related report, please contact the Editor-in-Chief and provide specific details.

Editorial Policies

Quality Expectations

Clearly articulating the importance of your research and the quality of presentation of your manuscript will have an important impact on the ease with which it can undergo peer review and the impression it gives to reviewers of its overall quality. If your writing is rambling, fails to establish the purpose of the research, provides an incoherent discussion, puzzling figures, or inappropriate scales on graph axes, the technical merits of your research will be less easy to recognize. Please articulate clearly the purpose of your work, write concisely and with clarity, and provide well thought-out and clearly presented figures and tables with appropriate considerations

of the magnitude of error. This will significantly increase the likelihood that we will publish your research.

Length Limits

The length limits for each article type are listed in the Article Types section. Article length can be determined by counting all text, excluding title page, references, and figure/table captions. Next, add 200 words for each small figure, scheme, or table that takes up part of a page. Large multipart figures, extensive tables, detailed maps, or chemical pathways taking up a page or more should be counted as 600 words. At the discretion of the assigned editor, some figures or tables may be counted as more than 600 words.

Manuscripts that exceed the length limit will be un-submitted (returned to the Draft section in ACS Paragon Plus) with a request to shorten, or they may be immediately rejected. To reduce length, make the Introduction and Discussion sections more concise. In addition, make appropriate use of Supporting Information, which is readily available to all readers of the manuscripts on the *ES&T* website.

Authors who believe that exceeding the length limit is essential must include a compelling argument in their cover letters. Ultimately, however, the decision about whether a manuscript that exceeds the recommended length is appropriate for review is made by the assigned editor.

Peer Review

All manuscripts submitted are reviewed and handled by the Editor-in-Chief and/or Executive Editors, and/or assigned to one of the Associate Editors. The Editor-in-Chief/Executive Editors/Associate Editors and Editorial Assistants evaluate the content and format of the paper. Due to the large volume of submissions, a significant fraction of manuscripts submitted to *ES&T* are declined after review by an editor and are not sent for external review. Common reasons for declining manuscripts at this initial stage include insufficient novelty, lack of sufficient environmental relevance, failure to place the rationale for the study or the results in the context of existing literature, insufficient quality of the data, or problems with the manuscript presentation (length limits, inadequate English, figure quality).

Manuscripts that meet editorial expectations are sent for external review to experts in the field. Associate editors select reviewers, monitor the progress of the review process, evaluate the comments of reviewers and forward them to the authors for their response, communicating ultimate acceptance or rejection to the corresponding author and carrying out a final check of accepted manuscripts.

Peer review is used to ensure the highest possible quality in published manuscripts. Scientists with expertise in the subject matter are invited to evaluate the submission for its originality, validity, significance and impact on the field and suitability to the *ES&T*. Typically three reviewers are selected per paper on the basis of the subject matter, available expertise and the Editor's knowledge of the subject area. Authors must also submit the names and addresses (including email addresses) of at least 4 potential reviewers who do not have conflicts of interest with the authors or manuscript content. Whenever possible, suggest academic email addresses rather than personal email addresses. However, the Editors are under no obligation to use specific individuals. Reviewers are requested to provide their assessment within two to three weeks. Anonymous copies of the reviews and the Editor's decision regarding the acceptability of the manuscript are sent to the corresponding author. If the reviewers' evaluations of the manuscript

disagree, or if reviewer's and Editor's comments are not satisfactorily addressed by the authors, the Editor may reject the manuscript or select additional reviewers to further assist in reaching a final decision on the manuscript.

The editors may exercise their prerogative to decline a manuscript after editorial review if that paper is judged to be outside the scope of *ES&T*, is lacking in significance or impact, is poorly written or formatted, or is fragmentary and marginally incremental in its contribution.

Submitting Revised Manuscripts and Response to Reviewers

Following the peer review of your manuscript, the corresponding author may be requested to perform either a major or a minor revision of the manuscript in order to fully satisfy all peer review comments. If you are submitting a revised manuscript (or an authorized resubmission of a manuscript that was already peer reviewed), you must submit point-by-point responses to each of the comments of the reviewers. We recommend that you copy the reviewer's comment into the text immediately prior to your response. You should also upload, as 'Information for Review Only', a version of the manuscript with changes highlighted to allow the editor to easily discern the revisions that have been made.

Resubmission of Previously Declined Manuscripts to *ES&T*

If your manuscript is declined by *ES&T*, read the decision letter carefully. Manuscripts are often declined because the editor determines that the subject matter is not appropriate for *ES&T* or that the novelty or significance of the manuscript is insufficient.

If you wish to submit a revised version of a declined manuscript to *ES&T*, you must first contact the associate editor who handled your original submission to request permission to resubmit. If you receive permission to resubmit, indicate in your cover letter that it is an authorized revision of a previously submitted manuscript, provide the original manuscript number, and state how the manuscript has changed. If the manuscript was reviewed, submit a detailed, point-by-point list of your responses to each of the comments of the reviewers or provide convincing reasons for declining to do so. The manuscript should be submitted online (see the Manuscript Submission section of this Guide, below), where it will receive a new manuscript number. During the submission process, mark "Yes" when asked if the manuscript has been previously submitted "in whole or in part." Manuscripts that editors judge to be resubmissions, in whole or in part, of previously submitted manuscripts that do not comply with these rules will not be considered for publication. Moreover, failure to alert *ES&T* to a resubmission, even in part, is an ethical violation.

Appeal Process

If your manuscript is declined by *ES&T* and the author believes an error has been made, you may appeal the decision directly to the editor who made it, providing a clear explanation for why you believe he or she should reconsider the decision. If the editor upholds the rejection, you may appeal the decision to the Editor-in-Chief (eic@est.acs.org). When outlining your appeal to the Editor-in-Chief, please include confirmation that you first asked the handling editor to reconsider the decision and then provide a clear explanation as to why you believe that the associate editor's decision is unreasonable. The Editor-in-Chief's decisions on appeals are final.

This same process should be used for appealing an editor's denial of your request to resubmit a previously submitted manuscript.

Press Release and Request for an Embargo

If your institution plans to put out a press release if/when your paper is published, and this press release requires prior embargo (a hold in publication date) of the paper, please do the following: Once your paper is accepted, contact the managing editor (managing.editor@est.acs.org) and the Journal Production office and notify them of the intended press release. They will coordinate publication of the paper to coincide with the press release.

Providing Potential Reviewer Names

Please suggest 4 reviewers. Authors are encouraged to avoid suggesting reviewers from the authors' institutions. Do not suggest reviewers who may have a [real or perceived conflict of interest](#). Whenever possible, suggest academic email addresses rather than personal email addresses.

Manuscript Transfer

If your submission is declined for publication by this journal, the editors might deem your work to be better suited for another ACS Publications journal or partner journal and suggest that the authors consider transferring the submission. [Manuscript Transfer](#) simplifies and shortens the process of submitting to another ACS journal or partner journal, as all the coauthors, suggested reviewers, manuscript files, and responses to submission questions are copied by ACS Paragon Plus to the new draft submission. Authors are free to accept or decline the transfer offer.

Note that each journal is editorially independent. Transferring a manuscript is not a guarantee that the manuscript will be accepted, as the final publication decision will belong to the editor of the next journal.

PRODUCTION AND PUBLICATION

Proofs via ACS Direct Correct

Correction of the galley proofs is the responsibility of the Corresponding Author. The Corresponding Author of an accepted manuscript will receive e-mail notification and complete instructions when page proofs are available for review via [ACS Direct Correct](#). Extensive or important changes on page proofs, including changes to the title or list of authors, are subject to review by the editor.

It is the responsibility of the Corresponding Author to ensure that all authors listed on the manuscript agree with the changes made on the proofs. Galley proofs should be returned within 48 hours in order to ensure timely publication of the manuscript.

Publication Date and Patent Dates

Accepted manuscripts will be published on the ACS Publications Web site as soon as page proofs are corrected and all author concerns are resolved. The first date on which the document is published on the Web is considered the publication date.

Publication of manuscripts on the Web may occur weeks in advance of the cover date of the issue of publication. Authors should take this into account when planning their patent and intellectual property activities related to a document and should ensure that all patent information is available at the time of first publication, whether ASAP or issue publication.

All articles published ahead of print receive a unique Digital Object Identifier (DOI) number, which is used to cite the manuscript before and after the paper appears in an issue. Additionally, any supplemental information submitted along with the manuscript will automatically be assigned a DOI and hosted on Figshare to promote open data discoverability and use of your research outputs.

ASAP Publication

Manuscripts will be published on the “ASAP Articles” page on the web as soon as page proofs are corrected and all author concerns are resolved. ASAP publication usually occurs within a few working days of receipt of page proof corrections, which can be several weeks in advance of the cover date of the issue.

Post-Publication Policies

The American Chemical Society follows guidance from the [Committee on Publication Ethics](#) (COPE) when considering any ethical concerns regarding a published article, Retractions, and Expressions of Concern.

Additions and Corrections

Additions and Corrections may be requested by the author(s) or initiated by the Editor to address important issues or correct errors and omissions of consequence that arise after publication of an article. All Additions and Corrections are subject to approval by the Editor, and should bring new and directly relevant information and corrections that fix scientific facts. Minor corrections and additions will not be published. Readers who detect errors of consequence in the work of others should contact the corresponding author of that work.

Additions and Corrections must be submitted as new manuscripts via ACS Paragon Plus by the Corresponding Author for publication in the “Addition/Correction” section of the Journal. The corresponding author should obtain approval from all coauthors prior to submitting or provide evidence that such approval has been solicited. The manuscript should include the original article title and author list, citation including DOI, and details of the correction.

Retractions

Articles may be retracted for scientific or ethical reasons and may be requested by the article author(s) or by the journal Editor(s), but are ultimately published at the discretion of the Editor. Articles that contain seriously flawed or erroneous data such that their findings and conclusions

cannot be relied upon may be retracted in order to correct the scientific record. When an article is retracted, a notice of Retraction will be published containing information about the reason for the Retraction. The originally published article will remain online except in extraordinary circumstances (e.g. where deemed legally necessary, or if the availability of the published content poses public health risks).

Expressions of Concern

Expressions of Concern may be issued at the discretion of the Editor if:

- there is inconclusive evidence of research or publication misconduct by the authors;
- there is evidence that the findings are unreliable but the authors' institution will not investigate the case;
- an investigation into alleged misconduct related to the publication either has not been, or would not be, fair and impartial or conclusive;
- an investigation is underway but a judgment will not be available for a considerable time.

Upon completion of any related investigation, and when a final determination is made about the outcome of the article, the Expression of Concern may be replaced with a Retraction notice or Correction.

Sharing Your Published Article

At ACS Publications, we know it is important for you to be able to share your peer reviewed, published work with colleagues in the global community of scientists. As sharing on sites known as scholarly collaboration networks (SCNs) is becoming increasingly prevalent in today's scholarly research ecosystem, we would like to remind you of the many ways in which you, a valued ACS author, can [share your published work](#).

Publishing open access makes it easy to share your work with friends, colleagues, and family members. In addition, ACS Publications makes it easy to share your newly published research with ACS Articles on Request (see below). Don't forget to promote your research and related data on social media, at conferences, and through scholarly communication networks. Increase the impact of your research using the following resources: [Altmetrics](#), [Figshare](#), [ACS Certified Deposit](#)

E-Prints

When your article is published in an ACS journal or partner journal, corresponding authors are provided with a link that offers up to 50 free digital prints of the final published work. This link is valid for the first 12 months following online publication, and can be shared via email or an author's website. After one year, the access restrictions to your article will be lifted, and you can share the [Articles on Request](#) URL on social media and other channels. To access all your Articles on Request links, log in to your ACS Researcher Resources account and visit the "My Published Manuscripts" page.

Reprints

[Article](#), [journal](#), and [commercial](#) reprints are available to order.

Appendix 1: PREPARING FOR SUBMISSION

We've developed ACS' publishing and editorial policies in consultation with the research communities that we serve, including authors and librarians. Browse our policies below to learn more.

Ethical Guidelines

ACS editors have provided [Ethical Guidelines](#) for persons engaged in the publication of chemical research—specifically, for editors, authors, and reviewers. Each journal also has a specific [policy on prior publication](#).

OFAC Compliance

As a U.S.-based non-profit organization, the American Chemical Society (ACS) is required to comply with U.S. sanctions laws and regulations administered by the [U.S. Treasury Department's Office of Foreign Assets Control](#) (OFAC). While these laws and regulations permit U.S.-based publishers like ACS to engage in publishing-related activities with authors located in sanctioned regions in many cases, ACS may be prohibited under U.S. law from engaging in publishing-related activities in some cases, including, but not limited to, instances where an author or the institution with which an author is affiliated is located in a particular sanctioned region or has been designated by OFAC as a [Specially Designated National](#) (SDN) pursuant to certain U.S. sanctions programs. ACS reserves the right to refrain from engaging in any publishing-related activities that ACS determines in its sole discretion may be in violation of U.S. law.

Safety Considerations

Authors must emphasize any unexpected, new, and/or significant hazards or risks associated with the reported work. This information should be in the Experimental Section of a full article and included in the main text of a letter. Statement examples can be found in the [Safety Statement Style Sheet](#) and additional information on communicating safety information from the *ACS Guide to Scholarly Communication* [is freely available here](#).

Conflict of Interest Disclosure

A statement describing any financial conflicts of interest or lack thereof is published in each ACS journal and partner journal article.

During the submission process, the Corresponding Author must provide a statement on behalf of all authors of the manuscript, describing all potential sources of bias, including affiliations, funding sources, and financial or management relationships, that may constitute conflicts of interest. If the manuscript is accepted, the statement will be published in the final article.

If the manuscript is accepted and no conflict of interest has been declared, the following statement will be published in the final article: "The authors declare no competing financial interest."

Plagiarism

In publishing only original research, ACS is committed to deterring plagiarism, including self-plagiarism. ACS Publications uses CrossCheck's iThenticate software to screen submitted

manuscripts for similarity to published material. Note that your manuscript may be screened during the submission process.

Further information about plagiarism can be found in Part B of the [Ethical Guidelines to Publication of Chemical Research](#). See also the [press release](#) regarding ACS' participation in the CrossCheck initiative.

Authorship, Author List, and Coauthor Notification

Authors are required to obtain the consent of all their coauthors prior to submitting a manuscript. The submitting author accepts the responsibility of notifying all coauthors that the manuscript is being submitted.

During manuscript submission, the submitting author must provide contact information (full name, email address, institutional affiliation, and mailing address) for all of the coauthors. Because all of the author names are automatically imported into the electronic [Journal Publishing Agreement](#), the names must be entered into ACS Paragon Plus. (Note that coauthors are not required to register in ACS Paragon Plus.) Author affiliation should reflect where the work was completed, even if the author has since left that institution. Authors may include a note with a current address if their institution has changed since the work was completed.

To expedite the processing of your manuscript, please format your author and affiliation information according to the guidelines in this link:

<https://pubsapp.acs.org/paragonplus/submission/author-address-information.pdf>.

Criteria for authorship can be found in Part B of the [Ethical Guidelines to Publication of Chemical Research](#). Artificial intelligence (AI) tools do not qualify for authorship. The use of AI tools for text or image generation should be disclosed in the manuscript within the Acknowledgment section with a description of when and how the tools were used. For more substantial use cases or descriptions of AI tool use, authors should provide full details within the Methods or other appropriate section of the manuscript.

If any change in authorship is necessary after a manuscript has been submitted, confirmation is required that all of the authors (including those being added or removed) have been notified and have agreed to the change. To provide this confirmation, authors are asked to complete and sign an [authorship change form](#) and provide the completed form to the appropriate editorial office.

Authors with a single name: If you, or any of your coauthors, have only one name, please follow these steps for proper submission to ACS Paragon Plus:

1. First (Given) Name Field: Enter an asterisk (*) into the "First (Given) Name" field.
2. Last (Family) Name Field: Enter your single name into the "Last (Family) Name" field.

If your paper is accepted, the asterisk (*) will be removed from the published version of the paper.

Patent Activities and Intellectual Property

Authors are responsible for ensuring that all patent activities and intellectual property issues are satisfactorily resolved prior to first publication (ASAP or in issue). Acceptance and publication will

not be delayed for pending or unresolved issues of this nature.

Open Researcher and Contributor ID (ORCID)

Authors submitting manuscript revisions are required to provide their own personal, validated ORCID iD before completing the submission, if an ORCID iD is not already associated with their ACS Paragon Plus user profiles. This ID may be provided during original manuscript submission or when submitting the manuscript revision. All authors are strongly encouraged to register for an ORCID iD, a unique researcher identifier. The ORCID iD will be displayed in the published article for any author on a manuscript who has a validated ORCID iD associated with ACS when the manuscript is accepted.

ORCID iDs should not be typed into the manuscript. ACS publishes only those ORCID iDs that have been properly verified and linked **before the manuscript is accepted**. After your ORCID iD is linked, it will be displayed automatically in all subsequently accepted manuscripts for any/all ACS journals. We do not publish ORCID iDs provided during proof review or via other communications after a manuscript is accepted for publication.

With an ORCID iD, you can create a profile of your research activities to distinguish yourself from other researchers with similar names, and make it easier for your colleagues to find your publications. If you do not yet have an ORCID iD, or you wish to associate your existing ORCID iD with your ACS Paragon Plus account, you may do so by clicking on “Edit Your Profile” from your ACS Paragon Plus account homepage and following the ORCID-related links. Learn more at www.orcid.org.

Copyright and Permissions

To obtain forms and guidelines for completing the Journal Publishing Agreement or obtaining permissions from copyright owners, and to explore a Copyright Learning Module for chemists, click [here](#).

Funder Reporting Requirement

Authors are [required to report funding sources](#) and grant/award numbers. Enter **ALL** sources of funding for **ALL** authors in **BOTH** the Funder Registry Tool in ACS Paragon Plus and in your manuscript to meet this requirement.

Open Access Compliance

ACS offers options by which authors can fulfill the requirements for open access and deposition into repositories for funded research. Visit our ACS Open Science site to see [how to fulfill requirements for specific funders](#) and to find out if you are eligible to publish under a [Read + Publish agreement](#) between ACS and your institution. You can also find out more about [Open Access Compliance](#) and [ACS Open Science initiatives](#).

Diversity and Inclusion Statement

During manuscript submission, ACS journal authors have the option to submit a statement sharing information related to diversity and inclusion that is relevant for their paper. If supplying a diversity and inclusion statement, the corresponding author must provide this on behalf of all authors of the

manuscript during the submission process. These statements include but are not limited to analysis of citation diversity and acknowledgment of indigenous land on which research was conducted. Statements expressing political beliefs are not permitted and may be removed by the journal office. All statements are subject to final review by the Editor.

- **Citation Diversity Statement:**The citation diversity statement should appear in the Acknowledgements section of the manuscript. ACS recommends including the following: (1) the importance of citation diversity, (2) the proportion of citations by gender and race/ethnicity for the first and last authors, (3) the method used to determine those proportions and its limitations, and (4) steps taken to by the authors to improve citation diversity in the article. We recognize that one limitation of the current methods is that it cannot account for intersex, non-binary, and transgender people, or Indigenous and mixed-race authors. (Adapted from [BMES/Springer Guidelines](#))
- **Land acknowledgment:**The land acknowledgment statement should appear in the Acknowledgements section of the manuscript. The statement should link to the institutions' formal land acknowledgments on which the research took place, if possible. Further guidance for creating these statements can be found here: <https://nativegov.org/news/a-guide-to-indigenous-land-acknowledgment/>.

Appendix 2: Preparing Graphics

Resolution

Digital graphics pasted into manuscripts should have the following minimum resolutions:

- Black and white line art, 1200 dpi
- Grayscale art, 600 dpi
- Color art, 300 dpi

Size

Graphics must fit a one- or two-column format. Single-column graphics can be sized up to 240 points wide (3.33 in.) and double-column graphics must be sized between 300 and 504 points (4.167 in. and 7 in.). The maximum depth for all graphics is 660 points (9.167 in.) including the caption (allow 12 pts. For each line of caption text). Lettering should be no smaller than 4.5 points in the final published format. The text should be legible when the graphic is viewed full-size. Helvetica or Arial fonts work well for lettering. Lines should be no thinner than 0.5 point.

Color

Color may be used to enhance the clarity of complex structures, figures, spectra, and schemes, etc., and color reproduction of graphics is provided at no additional cost to the author. Graphics intended to appear in black and white or grayscale should not be submitted in color.

Type of Graphics

Table of Contents (TOC)/Abstract Graphic

Consult the Guidelines for [Table of Contents/Abstract Graphics](#) for specifications.

Our team of subject-matter experts and graphical designers can also help generate a compelling TOC graphic to convey your key findings. Learn more about our [Graphical Abstract service](#).

Figures

A caption giving the figure number and a brief description must be included below each figure. The caption should be understandable without reference to the text. It is preferable to place any key to symbols used in the artwork itself, not in the caption. Ensure that any symbols and abbreviations used in the text agree with those in the artwork.

Charts

Charts (groups of structures that do not show reactions) may have a brief caption describing their contents.

Tables

Each table must have a brief (one phrase or sentence) title that describes the contents. The title should be understandable without reference to the text. Details should be put in footnotes, not in the title. Tables should be used when the data cannot be presented clearly in the narrative, when many numbers must be presented, or when more meaningful inter-relationships can be conveyed by the tabular format. Tables should supplement, not duplicate, information presented in the text and figures. Tables should be simple and concise.

Schemes

Each scheme (sequences of reactions) may have a brief caption describing its contents.

Chemical Structures

Chemical structures should be produced with the use of a drawing program such as ChemDraw.

Cover Art

ES&T authors are encouraged to submit images to be considered for use on the journal's front cover or [Supplementary Covers](#) at the time of the submission of their revised manuscript. If your article is accepted for publication, your artwork suggestion may also be selected for use on one of the journal's covers. If your art is selected for front cover, ACS will send you information about how to request one complimentary 18" by 24" printed poster featuring your work. Images chosen for the front cover will be published at no cost to the author.

Cover image submissions should be eye-catching, imaginative, and original. Unpublished images are encouraged. The cover image should not resemble a graphical abstract or data figure, but rather should be an artistic and scientifically accurate representation of the manuscript.

Image files should be submitted as TIF, JPG, PNG, or EPS files (not PDF or PPT) with a resolution of at least 300 dpi for pixel-based images. Cover art should be 8.19 inches (20.8 cm) wide × 10.00 inches (25.4 cm) high, and submission of "layered" artwork is encouraged. The

journal's logo will obscure the top 3 inches (7.62 cm) of the image. Authors should submit the cover image, along with a short (less than 50 words), clear legend explaining the image, as supplementary files to ACS Paragon Plus with their revised manuscript.

If you wish to be considered only for the front cover which is published at no cost to the authors, and not a paid supplementary cover, please respond NO accordingly to the Supplementary Cover Art question in ACS Paragon Plus. For more information on the Supplementary Covers program, [please see this webpage](#). All art submitted for consideration for a supplementary cover will also be considered for a front cover.

Web Enhanced Objects (WEO) | Approved Graphics Programs

Web Enhanced Objects (WEO)

The Web editions of ACS journals allow readers to view multimedia attachments such as animations and movies that complement understanding of the research being reported.

WEOs should be uploaded in ACS Paragon Plus with 'Web Enhanced Object' selected as the file designation. Consult the list of [compatible WEO formats](#).

Approved Graphics Programs and Websites with Compliant Copyright Licenses for Commercial Use

To comply with copyright rules, the following websites and graphics programs have copyright license wording that is acceptable to allow commercial use of their images and created graphics. It remains the responsibility of the author to obtain or purchase the correct copyright license agreement from the recommended vendors listed below.

- iStock (standard license)
- Frontier Media (authors own copyright and allow CC-BY license)
- Adobe (standard license)
- TurboSquid (royalty free license)
- Cinema4D (www.maxon.net)
- Pexels
- Pickit
- Freeimages.com
- Autodesk 3DS Max 2015 software
- Photoshop
- Inkscape
- Dreamstime.com
- ChemDraw
- PyMOL
- Microsoft ClipArt
- Wordclouds.com
- Piktochart
- 123RF.com
- Blender
- Mapchart
- Brusheezy

- openclipart.org (CC-BY - allows commercial use)
- Shutterstock (standard license)
- eLife Science (creative commons license)
- Megapixel (royalty free license)
- Protein Database
- Visual Molecular Dynamics (VMD)
- gettyimages.com
- Protter
- Shade 3D
- 3D Max
- QGIS software (uses GNU General Public licenses)
- "R" software (uses GNU General Public license)
- SVG Map v 1.5
- GIMP
- Avogadro Software
- 3D Sketchup Software
- Solidworks
- ArcGIS
- Affinity Designer (v 1.7, Serif Europe Ltd.)
- dreamgenerator.com
- XCrySDen
- National Gallery of Art/NGA Images. With the launch of NGA Images, the National Gallery of Art in Washington, DC implements an open access policy for digital images of works of art that the Gallery believes to be in the public domain. Images of these works are now available free of charge for any use, commercial or non-commercial. Users do not need to contact the Gallery for authorization to use these images as long as credit is given to the National Gallery of Art, Washington, DC. The images are available for download at the NGA Images website (images.nga.gov).