Manuscript Submission Requirements Checklist

Correspondence to the Editor-in-Chief should be addressed to:
Professor Julie B. Zimmerman, Editor-in-Chief, ES&T
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.
- (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:

- Anthropogenic Impacts on the Atmosphere
- Biogeochemical Cycling
- Contaminants in Aquatic and Terrestrial Environments
- Data Science
- Ecotoxicology and Public Health
- Energy and Climate
- Sustainable Systems
- Treatment and Resource Recovery

These categories are periodically reviewed and may be changed.

**Manuscript Types**

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

**Research Article** (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 breath 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.
- Manucripts 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.
- Manucripts 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.
- Manucripts on adsorption should consider kinetics as well as isotherms. First-principle models of mass transfer are preferred over purely empirical models.
- Manucripts 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.
- Manucripts 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.
- Manucripts 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.

Manucripts 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** (length limit: 5,000 word-equivalents). Feature articles 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.

**Viewpoint** (length limit: 1,000 words + author affiliations + 5 references + 1 single-frame figure with 50-word caption OR a 350-word table). Viewpoints 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.

**Critical Review** (length limit: 10,000 word-equivalents). These manuscripts are thoroughly documented, forward-looking comprehensive assessments of particular areas in the environmental science and technology research domain. Critical Reviews should increase readers’ knowledge through discriminating analysis and insightful organization of the material. Critical Reviews are not intended to consist of catalogues of prior research and must go beyond synthesis to include analysis. Factors considered when evaluating Critical 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 Critical 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 Critical Review for further consideration. If the full Critical review is favorably received by the assigned editor, the manuscript will then undergo peer review.

**Perspective** (length limit: 4,000 word-equivalents). These contributions 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.

**Policy Analysis** (length limit: 7,000 word-equivalents). These manuscripts 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.

**Letter to the Editor** (length limit: 500 words + author affiliations + 250 words of references). Letter to the Editor contributions 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, Critical Reviews, Perspectives, Correspondence/Rebuttals, and Additions and Corrections), please submit a Correspondence/Rebuttal.

**Correspondence/Rebuttal** (length limit: 1,000 word-equivalents each including citations). These manuscripts provide scholarly comment on papers appearing in the research section (Research Articles, Policy Analyses, Critical 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.

**Additions and Corrections (Errata).** These contributions may be used by the authors of a paper to correct errors and omissions of consequence that are identified after publication. Readers who also detect errors of consequence in the work of others should contact the corresponding author of the paper in question. Additions and Corrections must be approved by all coauthors before submission. All Additions and Corrections are subject to editorial approval, and corrections of minor errors or omissions will not be published.

**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 Publishing Center**

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 Publishing Center 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.

**Manuscript Preparation**

**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.

**Submit with Fast Format**
All ACS journals and partner journals have simplified their formatting requirements in favor of a streamlined and standardized review-ready format for an initial manuscript submission. This change allows authors to focus on the scientific content needed for efficient review rather than on formatting concerns. It will also help ensure that reviewers are able to focus on the scientific merit of a submission during the peer review process and speed the transfer process to a different ACS journal if applicable. Read more about the requirements and the benefits these serve authors and reviewers here. Manuscripts submitted to ES&T for initial consideration must adhere to these standards:

- The preferred format for ES&T manuscript files is a Microsoft Word document with the text and all graphics, including Table of Content art (TOC art), embedded within that single Word file.
- The text of all article types should be double-spaced in a single column with the lines numbered consecutively in a separate column at the margin.
- 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.
- 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 should be submitted as a separate file(s).

**Document Templates and Format**

The use of manuscript templates is not required for ES&T, but may be useful to consult to approximate how an article will compose. Learn more about document templates:

- Microsoft Word 2011 Template for Macintosh
- Microsoft Word 2010 Template for Windows | README file [PDF]

Additional generic instructions for submission of manuscripts and Supporting Information are available at the ACS Publishing Center. General information on the preparation of manuscripts can also be found in the The ACS Style Guide.

**Length limits.** The length limits for each article type are listed in the Article Types section. With the exception of Viewpoints and Letters to the Editor, article length can be determined by counting all text, excluding title page, references, and figure/table captions. Next, add 300 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 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 (SI; see below), which is also readily available to 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.

**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. 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.

During the submission process, you may type it or paste it into the submission system, or you may attach it as a file. 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.

**Elements of a Manuscript**

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

- Title and Authorship
- Abstract, Keywords and Synopsis
- Graphic for Table of Contents (TOC)/Abstract Art
- Introduction
- Materials and Methods
- Results and Discussion
- Abbreviations
- Acknowledgment
- Funding Sources
- References
- Tables and Figures
- Formulae and Equations
- Chemical Structures
- Web Enhanced Objects (WEO)
- Supporting Information
Front Cover Artwork

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 2 in Paragon Plus: Authors and Affiliations).

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, Critical 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, Features and Viewpoints 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 brief nontechnical statement (~20 words) explaining why the results of your paper have environmental relevance and significance and how the science or technology informs a specific environmental system (air, water, soil, human or other biota), system interactions, or policy. The synopsis is mandatory for Research Articles, Policy Analysis, Perspectives and Features and must be present at submission. The synopsis should be a complete sentence. The synopsis is NOT a description of the TOC/Abstract graphic.

Graphic for Table of Contents (TOC)/Abstract Art. This graphic, required for Research Articles, Reviews, Perspectives, and Features, appears next to the abstract online and in all versions of the article. It is also used in other situations in which a representative graphic is needed (e.g. social media). The selected image should give readers a quick visual representation of the essence of the paper. It should be simple and relatively free of text and technical characters, and make use of
color for visual impact. Abstract art may include a photograph of a field site or a schematic portraying the central findings of the paper. Please consult a recent issue of the journal for examples. Guidelines for TOC/Abstract Art specifications are also available. Please also see Appendix 3 for a list of approved graphics programs that have acceptable copyright agreements in place for the commercial use of graphics drawn by the author.

**All portions of the TOC graphic must have been created by the authors of the paper. Material not actually created by the authors cannot appear in TOC graphics even if the copyright owner of the material does not want credit.**

Size requirement = 240-point width by 135-point height (3.25” x 1.75”; approx. 8.25 cm by 4.45 cm)

**Additional specifications:**
- Images must be original (not previously published) and created by one of the authors of the paper.
- No copyright, credit, permission, or attribution statements are allowed.
- No captions or legends are permitted.
- Photographs may not show any identifiable individuals unless a model release is provided for ALL identifiable individuals. Any photographs must have been taken by an author of the paper.
- No copyrighted, public domain, Creative Commons license, ClipArt, or stock photo material may be used.
- No postage stamps, currency, or trademarked items (company or institutional logos, images, and products) may appear in the graphic.
- No maps may be used.
- TOC art is subject to final approval by the assigned editor.
- **Authors must certify in their cover letters that they have complied with this TOC art policy and confirm that the submitted image was created by an author and has never been published.**

**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 The ACS Style Guide 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.

**Funding Sources.** Authors are required to report ALL funding sources and grant/award numbers relevant to their manuscript. To meet this requirement, the submitting author must enter all sources of funding for ALL authors relevant to the submission in BOTH the Open Funder Registry tool in ACS Paragon Plus submission site, and in the manuscript. See this page for complete instructions. In the manuscript, funding should be acknowledged in the acknowledgment section.

**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’.

Examples of reference formats are available here. Authors can also consult The ACS Style Guide for additional information on reference style and format.

**Tables and Figures**

Tables and figures should be carefully designed to maximize presentation and comprehension of the experimental data with superfluous information excluded. Please see Appendix 3 for a list of approved graphics programs and websites that have acceptable copyright agreements in place for commercial use of graphics and images.

**Tables.** Tables should be simple, concise, and supplement, not duplicate, information presented in the text and figures. Tables should be embedded in the text at the point of relevance, and be furnished with appropriate titles of one phrase or sentence. The title should be understandable without reference to the text. Details or definitions should be placed at the bottom as footnotes. Tables should be numbered consecutively with Arabic numbers (i.e., 1, 2, …). Double-space them with wide margins, ensure that each data entry is placed in its own cell, and prepare tables in a consistent format, preferably using a word processor’s table format feature.

**Figures.** Please see Appendix 2 for further details on how to prepare your figure graphics, and Appendix 3 for a list of approved graphics programs and websites that have acceptable copyright
agreements in place for the commercial use of drawn graphics and copied images. All figure graphics must be prepared and submitted in digital format and preferably embedded in the text at the point of relevance. Graphics should be numbered consecutively with Arabic numbers (i.e., 1, 2, 3) and accompanied by a caption. It is also acceptable to submit separate TIFF, PDF, EPS (vector artwork), or CDX (ChemDraw file) files. If separate graphic files are submitted, they should be named in a manner clearly identifying their function (e.g., Scheme 1, Figure 1). Each separate graphic file must also include the caption for the respective graphic in the manuscript itself.

Each figure graphic should have good resolution, be clear, concise, and complete and use legible font. Colors may be used to enhance graphics. Graphics must meet the journal's minimum quality standards or will be returned to authors for improvement. 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.

Special requirements for EPS and TIFF files graphics (both when embedded in a Word file and when submitted separately):

- EPS files: All fonts must be converted to outlines or embedded in the graphic file. The document settings should be in RGB mode.
- TIFF files: Black & white line art must have a resolution of 1200 dpi; grayscale art (a monochromatic image containing shades of gray) must have a resolution of 600 dpi; and color art (RGB color mode) must have a resolution of 300 dpi.

In addition, ACS Authoring Services can prepare your figures, tables and illustrations to the exact specifications of the journal on your behalf. This includes changes to file type, resolution, color, space, font, scale, line weights and layout (to improve readability and professional appearance).

**Formulae and Equations.** Chemical formulas should be embedded in the text at the point of relevance and should correspond to The ACS Style Guide. Chemical equations should be balanced and numbered consecutively along with mathematical equations. Mathematical arguments should be as brief as possible.

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

**Web Enhanced Objects (WEO).** The web editions of ACS journals allow readers to review 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.

**Supporting Information.** Ancillary data and material of interest mainly to specialists is placed in Supporting Information to shorten the length of text in research manuscripts. Please see the section on Supporting Information (SI) (Optional) for further details below.

**Front Cover Artwork.** ES&T features a different image on the front cover of each issue. The cover art image is usually related to work that is published in that particular issue of the journal. Authors are encouraged to submit images to be considered for use on future front covers at the time of their initial submissions.

Images to be considered for the cover should be eye-catching, imaginative and
original. Unpublished images are encouraged. Covers should be submitted as an electronic file in eps, tif, jpg, or png format (not pdf or ppt), and be approximately 8 inches wide and 11 inches high, with a minimum resolution of 300 dpi (color) (2400 x 3300 pixels). The file should be sent as a layered file to enable art enhancement of individual elements. The top 3 inches of the cover image will be obscured by the journal logo, and the bottom 1 inch will be obscured by the ACS Publications bar. Authors should also include a 5-10 word caption that will appear on the front cover, and a short (less than 50 words) description of the cover that will be published alongside the image. Examples of previous ES&T covers can be seen at https://pubs.acs.org/loi/esthag.

If the image has been previously published, authors should include a signed permission form from the publisher to reprint the image in all media formats (print and electronic). See Copyright and Permissions on the ACS Paragon Plus website for more information. If your art is selected for front cover, it will be published at no cost to the authors. ACS will also send you information about how to request one complimentary 18” by 24” printed poster featuring your work.

ES&T also offers authors a great way to promote their work through Supplementary Covers. Submit your cover idea, artwork, and caption when submitting your manuscript revision in ACS Paragon Plus. If your article is accepted for publication, your suggestion may be selected for use on one of the journal’s supplementary covers.

Disclosures

The corresponding author must reveal any potential and/or relevant competing financial or other interest (of all authors) that might be affected by publication of the results contained in the manuscript. Potential conflicts of interest and sources of funding of the research reported must be clearly stated at the time of manuscript submission and included in the Acknowledgments. If no potential for a conflict of interest is declared, the following statement will be published in the article: “The authors declare no competing financial interest.” See the ACS Ethical Guidelines for additional details.

Supporting Information

Authors are encouraged to use Supporting Information (SI) to present ancillary data and material of interest mainly to specialists, as a way to shorten the text of research manuscripts. This information is provided to the reviewers during the peer-review process and is available to readers of the published work free of charge at the ACS website. Supporting Information must be submitted at the same time as the manuscript. In particular, the Materials and Methods section should provide the detail needed for the reader to determine whether the interpretations are supported by the data, but experimental details, including schematics of apparatus and maps of study sites, should be reported in SI, as should detailed calculations, derivations, databases, and data that are not essential to understanding the Results and Discussion (e.g. reference spectra). 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. See the list of Acceptable Software by File Designation and confirm that your Supporting Information is viewable.

All SI files of the same type should be submitted as a single file (rather than as a series of files containing individual images or structures). For example, all SI available as PDF files should be contained in one PDF file, if possible, and all CIFs should be submitted as a single file. Whenever possible, SI should be consolidated into a single word-processing file with graphics embedded.
SI should be formatted with a cover sheet listing authors, manuscript title, and the number of pages, figures, and tables. SI pages must be numbered consecutively, starting with page S1. Tables and figures should be numbered Table S1 and Figure S1. Reference to tables and figures included in the supporting information should be made in the main manuscript.

Figure S1. Caption (single sentence or a few words to describe)

Table S1. Caption (single sentence or a few words to describe)

SI is not permitted for Correspondence/Rebuttal, Additions and Corrections, Features, Viewpoints, or Letters to the Editor.

If SI files are included for publication, a brief, nonsentence description of the actual contents of each file 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: $^1$H NMR spectra for all compounds” or “Additional experimental details, materials, and methods, including photographs of experimental setup”.

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

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
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 licences 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 the ACS Publishing Center.

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. The English in all submissions must meet the journal’s minimum standards for publication. Manuscripts containing numerous errors in grammar and word choice can frustrate reviewers and make the review process challenging. ACS Publications’ English Editing Service is designed to help scientists communicate their research effectively. Although using such a service does not guarantee acceptance of a manuscript, they may help in clarifying the significance of your research. 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 Figures 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**

**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 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.

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 *ES&T*, the assigned 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.

During the transfer submission process, authors will have the opportunity to revise the manuscript and address comments received from editors or reviewers. Requirements of the new journal may be different, so authors should also check the Author Guidelines for the new journal and make any needed revisions in order to conform to those requirements. Please keep in mind that the reviews, reviewer identities, and decision letter will all be transferred to the new journal. Authors are encouraged to identify changes made to the manuscript in a cover letter for the new journal.

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. Complete details can be found here.

PRODUCTION AND PUBLICATION

Proofs via ACS Direct Correct

Once your manuscript has been accepted by the Associate Editor handling your manuscript you will be notified by email, and your manuscript will pass automatically to the *ES&T* Production Team in Columbus, Ohio who will create galley proofs of your work and send these to you for review. Following acceptance of your manuscript, all correspondence should then be directed to proofs@acs.org or American Chemical Society, Journal Publications, 2540 Olentangy River Rd., Box 3330, Columbus, OH 43210; phone 1-614-447-3665; fax 1-614-447-3745.

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 or via production of a list of corrections. Page proofs should be checked carefully against the manuscript, paying particular attention to tables, graphics, captions, equations, and formulas. No paper is released for ASAP publication until author approval has been received. All corrections, revisions, and additions
must be listed with their location in the proof clearly identified. At the page proof stage, alterations are restricted to minor typographical or grammatical corrections, such as fixing editorial and spelling mistakes. Authors are expected to have finalized major changes to the manuscript during the review process. Substantive changes in interpretation or corrections of data, or other important changes, including changes to the title or the list of authors, are subject to review by the editor and may delay or cancel publication. 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 ES&T web page 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. ASAP manuscripts do not receive information on the designated journal issue number for final publication or page number information.

**Issue Publication**

Following publication as an ASAP manuscript, manuscripts are then finally published in an issue and given page numbers. Articles appear on the web approximately 10 days before the printed version is available for distribution.

**Publication Date**

The first date on which the document is published on the Web, whether ASAP or in an issue, is considered the official date of publication. Online publication dates on the ES&T website can therefore occur weeks in advance of the final printed issue of publication if published first as an ASAP. All articles published ahead of print receive a unique Digital Object Identifier (DOI) number
(e.g. 10.1021/acs.est.XXXXXXX) which is used to cite the manuscript immediately it appears online and after the paper appears in an issue.

**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.

**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 Publishing Center 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.

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.

**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.

If any change in authorship is necessary after a manuscript has been submitted, the Corresponding Author must e-mail a signed letter to the Editor-in-Chief confirming that all of the original coauthors have been notified and have agreed to the change. If the change involves the removal of a coauthor’s name, the Corresponding Author must, in addition, arrange for the coauthor involved to e-mail a separate signed letter to the Editor-in-Chief consenting to the change. No changes in the author list will be permitted after a manuscript has been accepted.

To expedite the processing of your manuscript, please format your author and affiliation information according the guidelines in this link: https://pubsapp.acs.org/paragonplus/submission/author-address-information.pdf.

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.)

**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 copyright transfer, 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
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.

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.

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 with a resolution of at least 300 dpi for pixel-based images. Images should be 8.19 in × 10.00 in. (or 20.80 cm × 25.40 cm). Please note that the journal title will cover the top 3 in. (7.62 cm) of the image. Authors should submit the cover image along with a 5-10 word caption explaining the artwork, and a short, clear legend (less than 50 words) that will appear alongside the front cover 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.

Appendix 3: 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).