JOURNAL OF THE TENNESSEE ACADEMY OF SCIENCE

MANAGING EDITOR

Stephen J. Stedman Department of English and Communications Box 5053 Tennessee Technological Univ. Cookeville, TN 38505

Phone: 931-372-3763 FAX: 931-372-3484

E-mail: sstedman@tntech.edu

ASSISTANT EDITOR

Christy T. Carter Department of Biology Box 5063 Tennessee Technological Univ. Cookeville, TN 38505 Phone: 931-372-3147 FAX: 931-372-6257 E-mail: ctcarter@tntech.edu

EDITORIAL BOARD

Botany James D. Caponetti Div. of Biology

Univ. of Tennessee, Knoxville Knoxville, TN 37996 Email: jcaponet@utk.edu

Geology and Geography Michael Gibson Department of Gool,, Geog., and Physics Univ. of Tennessee, Martin

Martin, TN 38238 Email: mgibson@utm.edu

Microbiology Jon H. Lowrance

Department of Biology Lipscomb Univ. Nashville, TN 37204

Email: jon.lowrance@lipscomb.edu

Cell and Molecular Biology Chad S. Brooks

> Department of Biology P.O. Box 4718 Austin Peay State University Clarksville, TN 37044 Phone: 931-221-6499 FAX: 931-221-6323

Email: brooksc@apsu.edu

History of Science George E. Webb Department of History Tennessee Tech. Univ. Cookeville, TN 38505 Email: gwebb@tntech.edu

Physics and Astronomy Martha Weller

Department of Physics and Astronomy Middle Tennessee State Univ. Murfreesboro, TN 37132 Email: mweller@mtsu.edu

Chemistry Martin V. Stewart

Department of Chemistry Middle Tennessee State Univ. Murfreesboro, TN 37132 Email: mstewart@mtsu.edu

Mathematics and Computer Science William K, Glunt

Department of Mathematics and Computer Science Austin Peay State Univ. Clarksville, TN 37044 Email: gluntw@apsu.edu

Science and Mathematics Teaching Sarah F. Barlow

Department of Biology Middle Tennessee State Univ. Murfreesboro, TN 37132 Email: sbarlow@mtsu.edu

Engineering

Michael L. Daley Department of Electrical Engineering The Univ. of Memphis

Memphis, TN 38152 Email: mdaley@memphis.edu

Medical Sciences J. Michael Redding Department of Biology Tennessee Technological Univ. Cookeville, TN 38505 Email: mredding@tntech.edu

Zoology Chris Brown

> Department of Biology Box 5063 Tennessee Technological Univ. Cookeville, TN 38505 Email: cabrown@tntech edu

INFORMATION FOR CONTRIBUTORS

THE JOURNAL OF THE TENNESSEE ACADEMY OF SCIENCE was established in 1925 to publish science-based papers that are of interest to people residing and working in Tennessee. Acceptable topics include biology, chemistry, engineering, geology, geography, history of science, mathematics, computer science, medical sciences, physics, astronomy, and science teaching.

Manuscripts should include a brief but explicit title, and the name, affiliation, and address for each author. All manuscripts must have an abstract consisting of one paragraph of 250 words or less. An introduction (with no heading) follows the abstract and includes the purpose of the study or paper. The text follows the introduction and should be divided by central main headings such as materials and methods, results, and discussion. However, organization of the main headings will vary depending on the discipline. The text should be followed with sections such as literature cited, appendix, figure legends, and tables, as needed. Figure legends and tables should be on a

Manuscripts, including abstract, text, literature cited, and figure legends should be word-processed and double spaced with 2.5 cm margins. All text to be printed in italics should be typed in italics. Do not use boldface or underline. Tables and figures should be prepared as individual files.

Manuscripts for consideration of publication should be submitted at http://jtas.allentrack2.net. Prospective authors should consult a recent Journal issue for general style. Detailed instructions for manuscript preparation and submission are available from the Managing Editor (sstedman@tntech.edu). Specific questions regarding the online submission process should be directed to support@allentrack.net.

Manuscripts are reviewed by at least two appropriate reviewers and are subject to editing. Final acceptance of the paper is decided by the Managing Editor. At least one author of any accepted paper must be a member of the TENNESSEE ACADEMY OF SCIENCE before the paper can be published. A charge of \$90 per printed page is required to help defray publication costs. Reprints (in multiples of 100) may be ordered at the time proofs are received. Payment of page charges and reprint costs is expected prior to publication.

INSTITUTIONAL SUSTAINING MEMBERS OF THE TENNESSEE ACADEMY OF SCIENCE

Austin Peay State University

Lincoln Memorial University

Middle Tennessee State University

Motlow State Community College

Rhodes College

Tennessee Technological University

The University Of Tennessee At Knoxville

The University Of Tennessee At Martin

The University Of Tennessee Space Institute

Volunteer State Community College

FUTURE MEETING OF THE TENNESSEE ACADEMY OF SCIENCE

2009
The University of Tennessee, Knoxville
Knoxville, Tennessee