JOURNAL OF THE TENNESSEE ACADEMY OF SCIENCE

MANAGING EDITOR
M. Gore Ervin
Dept. of Biology, Box 60
Middle Tennessee State Univ.
1500 Greenland Drive
Murfreesboro, TN 37132
Phone: 615-898-2045
FAX: 615-898-5093
E-mail: mervin@mtsu.edu

After January 1, 2008
Stephen J. Stedman
Dept. of English and Communications
Box 5053
Tennessee Technological University
 Cookeville, TN 38505
Phone: 931-372-3763
FAX: 931-372-3484
E-mail: stedman@tntech.edu

EDITORIAL BOARD

Botany
James D. Caponetti
Div. of Biology
Univ. of Tennessee, Knoxville
Knoxville, TN 37996

Ethics in Science and Technology
Norman Took
Dept. of Physics and Astronomy
Vanderbilt University
Nashville, TN 37235

Medical Sciences
Robert O'Bannon
Dept. of Biology
Lee College
Cleveland, TN 38402-1315

Cell and Molecular Biology
Charles J. Biggers
Dept. of Biology
The Univ. of Memphis
Memphis, TN 38152

Geology and Geography
Michael Gibson
Dept. of Geol., Geog., and Physics
Univ. of Tennessee, Martin
Martin, TN 38238

Microbiology
Jon H. Lowrance
Dept. of Biology
Lincoln Univ.
Nashville, TN 37204

Zoology I
James A. Huggins
Dept. of Biology
Union Univ.
Jackson, TN 38305

Chemistry
Martin V. Stewart
Dept. of Chemistry
Middle Tennessee State Univ.
Murfreesboro, TN 37132

History of Science
George E. Webb
Dept. of History
Tennessee Techn. Univ.
 Cookeville, TN 38505

Physics and Astronomy
Martha Weiller
Dept. of Physics and Astronomy
Middle Tennessee State Univ.
Murfreesboro, TN 37132

Zoology II
Karl H. Joplin
Dept. of Biological Sciences
East Tennessee State Univ.
Johnson City, TN 37614-0703

Engineering
Michael L. Daley
Dept. of Electrical Engineering
The Univ. of Memphis
Memphis, TN 38152

Math and Computer Science
William K. Cluney
Dept. of Math. and Computer Sci.
Austin Peay State Univ.
Clarksville, TN 37044

Science and Math Teachers
Sarah F. Barlow
Dept. of Biology
Middle Tennessee State Univ.
Murfreesboro, TN 37132

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 separate page.

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.

After January 1, 2008 manuscripts for consideration of publication should be submitted at http://itas.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 (stedman@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, Clarksville
Middle Tennessee State University, Murfreesboro
Motlow State Community College, Tullahoma
Rhodes College, Memphis
Tennessee Technological University, Cookeville
The University of Tennessee, Knoxville
University of Tennessee, Martin, Martin
The University of Tennessee Space Institute, Tullahoma
Volunteer State Community College, Gallatin

FUTURE MEETINGS OF THE
TENNESSEE ACADEMY OF SCIENCE

2007
Volunteer State Community College
Gallatin, Tennessee

2008
Joint Meeting with the Tennessee Science Teachers Association
Nashville, Tennessee

2009
The University of Tennessee, Knoxville
Knoxville, Tennessee