KENNETH G. HANCOCK MEMORIAL STUDENT AWARD IN GREEN CHEMISTRY

Student Application Package

Award: $1000

Closing date: February 1

The Kenneth G. Hancock Memorial Award is sponsored by the American Chemical Society's (ACS) Division of Environmental Chemistry and the U.S. Department of Commerce, National Institute of Standards & Technology (NIST). The administration of the fellowship is the responsibility of the ACS Green Chemistry Institute. Questions about the Hancock Memorial Award should be directed to the ACS Green Chemistry Institute, tel: 202-872-6102; email: gci@acs.org.

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Background

Green Chemistry, or environmentally benign chemical synthesis and processing, is an integral component in meeting national sustainable development and pollution prevention goals and objectives. One of the architects of the 'Environmentally Benign Chemical Synthesis and Processing' approach was Dr. Kenneth G. Hancock, Director of the Division of Chemistry at the National Science Foundation (NSF). Dr. Hancock was an active advocate who emphasized the role of chemists and chemistry in solving the environmental problems of the past, as well as avoiding environmental problems in the future, in an economically viable fashion.

It was a great loss to the advancement of Green Chemistry when Dr. Hancock died unexpectedly while attending an environmental chemistry conference in Eastern Europe in 1993. To honor his contributions in the field of Green Chemistry, Dr. Hancock's colleagues from academia, government, and industry established the Kenneth G. Hancock Memorial Student Award in Green Chemistry, offered under the auspices of the American Chemical Society's (ACS's) Division of Environmental Chemistry. The Hancock Memorial Award will be given annually in conjunction with the Presidential Green Chemistry Challenge Awards Ceremony, administered by the U.S. Environmental Protection Agency (EPA).

Description

ACS President Dr. Paul Anderson announced the Hancock Memorial Award in June 1997 as an opportunity for undergraduate and graduate students to compete for a prestigious memorial award in recognition of their studies and/or research in Green Chemistry. The award provides national recognition for outstanding student contributions to furthering the goals of Green Chemistry (i.e., the research, development, and implementation of fundamental and innovative chemical technologies that incorporate the principles of Green Chemistry into chemical design, manufacture, and use, and that have the potential to be utilized in achieving national pollution prevention goals).

Terms of the Award

The Hancock Memorial Award is a one-time cash award in the amount of $1,000 and is open to all undergraduate and graduate students, regardless of citizenship or country of study. One or two awards are typically given annually. This application package contains concise instructions on how to apply for the award. Applications must be postmarked no later than February 1, each year. An independent panel convened by the ACS Division of Environmental Chemistry will judge applications received for the award. The award will be given at the annual Presidential Green Chemistry Challenge Awards Ceremony in Washington, DC.

Award Scope and Objectives

Green Chemistry is defined as the use of chemistry for source reduction, the highest tier of the risk management hierarchy as described in the Pollution Prevention Act of 1990. More specifically, Green Chemistry involves a reduction in or elimination of the use or generation of hazardous materials—including feedstocks, reagents, solvents, products, and byproducts—from a chemical process. Green Chemistry encompasses all aspects and types of chemical processes, including synthesis, catalysis, analysis, monitoring, and separations and reaction conditions that reduce impacts on human health and the environment relative to the current state of the art.

Applications for the Hancock Memorial Award must describe studies or research that the student has participated in, which address the scope and objectives of green chemistry and/or green engineering. The activity should address one or more of the principles of green chemistry and/or green engineering as articulated by Anastas and Warner (www.acs.org/greenchemistry) and, more specifically, that address one or more of the following three Green Chemistry focus areas:

Focus Areas

1. The use of alternative synthetic pathways for green chemistry, such as:
   - Catalysis and biocatalysis.
   - Natural processes such as photochemistry and biomimetic synthesis.
   - Alternative feedstocks that are more innocuous and renewable (e.g., biomass).
2. The use of alternative reaction conditions for green chemistry, such as:
   - Use of solvents that have a reduced impact on human health and the environment.
   - Increased selectivity and reduced wastes and emissions.
3. The design of chemicals that are, for example:
   - Less toxic than current alternatives.
   - Inherently safer with regard to accident potential.

Selection Criteria

The selection criteria used to judge applications received for the Hancock Memorial Award are similar to those used for the Presidential Green Chemistry Challenge Awards. The criteria were designed to ensure that fellowship recipients are furthering the goals of green chemistry and/or green engineering. The Hancock Memorial Award selection criteria are as follows:

1. The student activity must meet the scope and objectives of the award and address one or more of the focus areas.
2. The student activity should offer potential human health and/or environmental benefits. The activity should further a technology that might, for example:
   - Reduce toxicity (acute or chronic), illness or injury, flammability, explosion potential, emissions or other releases, transport of hazardous substances, or use of hazardous substances in reaction processes.
   - Improve usage of natural resources such as renewable feedstocks.
   - Enhance biodiversity.
3. The student activity should be potentially applicable to a large and broad-based segment of academia, industry, or society at large. The activity should further a technology that is, for example:
   - A realistic approach to green chemistry.
   - A remedy to a real environmental problem.
   - Readily transferable to other academic institutions or industry sectors.
4. The student activity should be innovative and of scientific merit. The activity should be, for example, original (i.e., never before investigated, researched, or employed) and scientifically valid.

How To Apply

There is no application fee and no standard application form, but applications should meet certain requirements. Applications must be no longer than eight, 8½-by-11-inch pages, written in font no smaller than 11 point, with margins of at least 1 inch. Applications longer than eight pages total, not including attachments as described below, will not be accepted.

The application should include the following:

1. A one-page cover sheet with the complete names, addresses, telephone numbers, fax numbers, and e-mail addresses (if available) of the following individuals:
   - The undergraduate or graduate student applicant
   - The primary sponsor (academic institution and project advisor)
   - Contributors (individuals or organizations that provided financial or technical support for the student activity)
   - Contact person – person who is responsible for all communications with the program (the student or advisor)
2. The cover sheet should be followed by a background section (no more than one page) containing the following information:
   - For undergraduate applicants: type of degree expected (B.A. or B.S.), major and any minor fields of study, and the month and year the degree is expected.

- For graduate applicants: type of degree expected (M.S. or Ph.D.), field of study, number of years already spent pursuing graduate work, and the month and year the degree is expected. In addition, graduate applicants must provide their undergraduate institution, type of degree earned, major and any minor fields of study, and the month and year their undergraduate degree was awarded.
- Current undergraduate or graduate grade point average. In addition, for graduate students, final undergraduate grade point average.
- List of applicant's public presentations and publications, if any.
- A sentence or two on the applicant's academic interests.
- A sentence or two on the applicant's career plans.

3. The background page(s) should be followed by an abstract page containing the following information:
   - A project title.
   - An abstract not to exceed 500 words that briefly describes the student's studies or research.
4. The remaining three pages can be used to detail how the project meets the selection criteria. Explain the following:
   - How the student's studies or research meet the fellowship scope and objectives and focus areas
   - The potential human health and/or environmental benefits
   - The potential application to academia, industry, and society
   - The innovation and scientific merit of the student's project

Some selection criteria might not apply to every project. Such instances should be indicated where appropriate.

There is no limit on the number of applications that can be submitted by any one academic institution or project advisor; however, only one application is permitted per student. All applications received will be considered public information. No material will be returned. Award program sponsors are not responsible for lost or damaged applications.

Electronic applications are preferred, and must be received by 11:59:59 p.m. on February 1. Send electronic applications materials via email to gci@acs.org with "Hancock Memorial Award Application – [last name]" in the subject line. If electronic submission is not possible, an original hard copy and an electronic copy (on CD or floppy disk) of the application materials with the student's name in the file name must be postmarked no later than January 31 each year, and mailed or sent by overnight service to:

Green Chemistry Institute
American Chemical Society
1155 Sixteenth ST, NW
Washington, DC 20036
Phone: 202-872-6102; Fax: 202-872-6206
gci@acs.org

Judging Applications

A panel selected by the ACS Green Chemistry Institute will judge the applications. This panel might include members of the scientific, educational, industrial, governmental, and environmental communities. Judges might request verification of any activities described or claims made in applications that are selected as finalists. The judges will select the student(s) whose project best meets the selection criteria for the award.

Notification of Award Recipients

The official public announcement of the award recipient(s) will be made during the annual Presidential Green Chemistry Challenge Awards Ceremony in Washington, DC. A certificate and check for the award amount will be presented to the student(s) during the ceremony. The recipient will be notified prior to the public announcement and will be asked to verify that he or she will be able to attend the ceremony.

Additional Information

Questions about the Hancock Memorial Student Award should be directed to the ACS Green Chemistry Institute: **Email gci@acs.org** (preferred); Tel (202) 872-6102.