TO: High School Math, Science, and Technology Teachers
FROM: Jean Patrick Antoine, Assistant Dean, Rutgers University, School of Engineering
SUBJECT: 2018 New Jersey Junior Science & Humanities Symposium at Rutgers University

We are pleased to invite you and your school to participate in the Rutgers University Junior Science and Humanities Symposium, a science fair for high school students interested in science, mathematics, and technology research. Students who have undertaken their own scientific research, underclassmen who intend to conduct research in the future, and high school teachers are invited to attend our symposium at Rutgers University’s School of Engineering in Piscataway, NJ on March 5-6, 2018.

To participate in the competitive portion of our program, students must have conducted STEM-related research and have elicited comprehensive and viable results and findings from their work. Students intending to apply must submit abstracts of 200 words or less giving an overview of their research by December 1, 2017. Teacher/Student Registrations and Parent/Guardian Permission forms are due on December 1, 2017 as well. By December 15, 2017, students must submit short videos (maximum of 2 minutes) presenting their answers to the following questions: (1) What did you know about your research? (2) What did you not know about your research? (3) Why is your research important? Students also must submit full research papers detailing their findings by January 4, 2018. Based on the research papers, our panel of judges will select up to 20 of the top students, as Finalists, to give oral presentations of their work at our symposium in March. The judges will also select up to 50 other students, as Poster Finalists, to give poster presentation of their work at our symposium. All applicants will be notified of their status by February 12, 2018.

Finalists compete for up to 3 expense paid trips to the 2018 National Symposium on May 2-5, 2018 in Hunt Valley, MD, as well as scholarships of $2,000; $1,500; or $1,000. Poster finalists compete for 2 expense paid trips to nationals and additional prizes.

Students who have not yet conducted research or are just beginning their projects are welcome to attend the symposium as observers. On the first day of the symposium (March 5, 2018), all student researchers and sponsoring teachers participate in a series of events designed to cultivate their interests in the STEM field. On the second day of the symposium (March 6, 2018), all student researchers, observers, and sponsoring teachers participate in the symposium. The first day will consist of presentations from researchers at Rutgers, exhibits, and a college & career focus groups. In the evening, students will attend a formal dinner recognizing their scientific achievements, hear from a keynote speaker, and take part in team based math, science, and engineering challenges.
WHO IS ELIGIBLE?: Any student attending a high school in Northern or Central New Jersey is eligible to participate. There is no registration fee to participate, and all program costs and meals during the symposium are covered for up to 5 students (as observers/presenters), and up to 1 chaperone per school. Additional observers are welcome to attend but will have to contact Jean Patrick Antoine through jantoine@rutgers.edu.

PROGRAM OBJECTIVES: The primary motives of JSHS are to promote research and experimentation in the sciences, engineering, and mathematics at the high school level, and to publicly recognize students for their outstanding achievements. At the Symposium, students will have the chance to meet like-minded, dedicated and enthusiastic students from other schools, learn about future careers in science and engineering, and be inspired by other students’ research and ideas.

AWARDS:
Students participating in our “Oral Competition” are competing for
a) Three expense paid trips to the National JSHS.
  b) Three scholarships ranging from $1,000 to $2,000
  c) Three opportunities to present their work at Nationals, competing for up to $16,000 in scholarship money.
  d) Additional prizes such as t-shirts, books, etc.

Students participating in our “Poster Competition” are competing for
a) Two expense paid trip to the National JSHS.
  b) Additional prizes such as t-shirts, books, etc.

Steps to Participation:
STEP 1: HOW DO I REGISTER?: Teachers who will be chaperoning their students should register for the symposium via Cvent at a link that will be updated on the website: http://soe.rutgers.edu/jshs

Students who would like to register for the symposium independently (i.e. no other students from their school plan to attend, and they will be chaperoned by a parent rather than a teacher) should also register via Cvent at a link that will be updated on the website: http://soe.rutgers.edu/jshs

Along with the online Cvent Registration form, all students who will be submitting their research for the competitive portion of our program must submit an abstract of 200 words or less giving the overview of their research by December 1, 2017. The abstracts must be uploaded directly in PDF format to their Cvent accounts.

STEP 2: HOW DO I SUBMIT RESEARCH PAPERS?: Students who wish for their research to be considered for the competitive portion of our program must additionally submit full research papers describing their work by January 4, 2018. All papers should be uploaded in .pdf format directly to the Cvent accounts. The format and guidelines for research papers are available at http://soe.rutgers.edu/jshs under the forms section.

Our judges will read these papers and choose up to twenty finalists to compete in the “Oral Competition” at our Symposium. The authors of all papers that demonstrate excellent work and understanding but are not selected for the “Oral Competition” will be invited for our “Poster Competition.” Students whose work does not meet the standard for selection will still be eligible to attend the Symposium as an observer. All applicants will be notified of the judges’ decisions by February 12, 2018.
Event Logistics:

For the Symposium itself on March 5 and 6, 2018, please plan to arrive at Rutgers University’s Busch Campus Center in Piscataway, NJ by 10:00 AM on March 5, 2018. The event will conclude no later than 6:00 PM on March 6, 2018. Attendees are responsible for their own transportation to and from the event.

QUESTIONS?

If you have any questions about the JSHS program, please feel free to contact

JSHS Assistant Director:

Mr. Jean Patrick Antoine,
j.antoine@rutgers.edu
848-445-4753
** IMPORTANT DATES AND DEADLINES **

School/Teacher/Student Registrations are due December 1, 2017.
Parent/Guardian Permission forms are due December 1, 2017.
Student Abstracts are due December 1, 2017.
Student Videos are due December 15, 2017.
Student Full Papers are due January 4, 2018.
Principal/Chairperson of Science Department forms are due January 4, 2018.
Judges results will be announced on February 12, 2018.
Northern New Jersey Junior Science and Humanities Symposium will be on March 5 - 6, 2018.

**SPONSORSHIP:** The Junior Science & Humanities Symposium has been sponsored by the United States Department of the Army since its inception in 1958, and additionally sponsored by the Departments of the Navy and Air Force since 1995 and 1996, respectively. Resulting from this sponsorship and the cooperative efforts of universities throughout the nation, JSHS annually reaches over 10,000 high school students and teachers at regional and national symposia. The Academy of Applied Science, a nonprofit organization in Concord, New Hampshire, administers the National JSHS Program in cooperation with universities and other educational institutions. National Website: http://www.jshs.org
Abstract Guidelines

The abstract should provide a concise yet descriptive overview of your research project in no more than 200 words. A good abstract briefly states the research problem or purpose of the research, how the problem was studied, what was found, and what the findings mean (conclusions). A properly written abstract presents a summary of the research conducted and the most significant conclusions reached. No pictures, charts, graphs or attachments may accompany the abstract.

Format for the 200-word abstract: The header preceding the abstract body must include:

1. Title of the research;
2. Name(s) of Author(s);
3. High school, high school city, high school state;
4. Name of teacher/mentor/sponsor. Precede the individual's name with a subheading (i.e. teacher, mentor, sponsor);
5. Include one line of space between the heading and the abstract body. (taken from http://www.jshs.org/Abstract_Submission.html)

Writing the Body of the Abstract

Abstracts are the chief means by which scientists decide which research reports to read. The abstract is a very brief overview of your ENTIRE research project. The abstract tells the reader WHAT you did, WHY you did it, WHAT you found and WHAT it means. The sequence of sentences is ordered in a logical fashion, beginning with an introduction that includes your hypothesis and proceeding to your test (e.g. materials, methods and procedures used), results (data or findings), discussion and conclusions.

Distill the most important items of your research project, and leave out unimportant details. As a first draft, write one or two sentences that summarize each section. For your final draft, make sure the abstract flows logically. Give it to a friend, teacher, parent, mentor, etc., to read. Ask them to tell you what they think you actually did and what you found. Revise as necessary.
Research Paper Guidelines
A. Preparation of Student Research Papers

1. General - All papers must be prepared according to the following:
   a. Be typed, double-spaced, one side only, on 8 ½” by 11” paper with one-inch margins.
   b. The paper should be a minimum of 5-6 pages and a maximum of 20 pages, including appendices. When submitting electronically, be sure that the paper is in PDF format. Include only 1 copy if submitting by postal mail.
   c. Cite all references, sources of information, and include a bibliography.
   d. Include a Title Page that includes the Student’s Name, Title of Paper, and High School.
   e. Include a page detailing any major assistance received, as well as an acknowledgement of your research mentors. This should come directly after your title page.
   f. Use your paper's title as a header on all pages. Do not put your name on these pages.

2. Paper Content – we suggest organizing the paper as follows:
   a. Abstract – concise descriptive overview of paper *Follow Abstract guideline on http://soe.rutgers.edu/jshs*
   b. Introduction - a clear and concise statement of the purpose or objective.
   c. Procedure/Materials and Methods - described in sufficient detail to permit a reviewer or listener to understand how the results or data were obtained.
   d. Results - stated clearly and concisely. This section should state what you observed (facts). Analysis of these results is left to the following section.
   e. Discussion and Conclusions - stated clearly and concisely, and based upon the material presented in the results section.
   f. Related Work – If appropriate, a student may wish to describe work done by other researchers on similar problems and topics.
   g. Future Work - Plans and directions for continued research may also be included.
   h. Literature Cited: We suggest using in-line citations i.e. [3] throughout the paper. These numbers correspond to literature (research papers or books) cited in this final section.

While this method of organization is flexible, we recommend that it be followed as is appropriate to your research. For instance, research which creates a novel design for a system should spend more time detailing and evaluating design decisions. Overall, clarity and a logical argument should be your overriding goals.

3. Preparation of Illustrations
   a. Art work and illustrations must be of high quality, neat, and legible.
   b. All diagrams and illustrations will be clearly referenced in the research paper (e.g., Fig. 2, etc.) and should include descriptive captions describing what is shown.