



NewsLetter

The New Jersey Academy of Science

Rutgers University, Beck Hall, Room 215, 99 Avenue E, Piscataway, NJ 08854-8040

Volume 36, Number 4

Fall Issue

GRANT IN AID PROGRAM:

Each year, the Grant in Aid (GIA) program announces its call for proposals at the start of the fall school semester. Proposals are due in mid November, and the results of evaluations of the proposed research projects by the scientists are announced in early January. Students present their research findings in April at the NJAS annual meeting. For the academic year 2003-2004, the GIA program highlights were:

- 91 proposals submitted from 6 different schools across New Jersey
- 32% of proposals were from students in an urban school district
- 22 student-written proposals were awarded GIA funding of \$70 per project
- 32% of Awardees were minority students
- 50% of Awardees were female
- While the majority of Awardees were in 10th grade, 9th, 11th, and 12th grades were also represented
- Each Awardee presented their research findings in an oral presentation at the NJAS annual meeting on April 3rd, 2003 at Fairleigh Dickenson University in Madison NJ.
- Laura Toth and Andrew Atalla, having received highest honors at the meeting, were nominated by NJAS to receive honorary student AAAS membership for 2004-5

NSTA SURVEY SAYS SCHOOL DISTRICTS STRUGGLING TO FILL SCIENCE TEACHER VACANCIES

According to a survey by the National Science Teachers Association (NSTA), schools nationwide are struggling again this fall to fill science teacher vacancies. Of the 600 science educators who responded to an NSTA informal survey, 70 percent indicated that their school or school district is experiencing difficulty finding and hiring qualified

science teachers. When asked if the problem has decreased or increased in recent years, 48 percent said that the problem has increased. "There are many reasons why we continue to experience a shortage of science educators, but the most disturbing is a high turnover rate among teachers," said NSTA President Anne Tweed. "From a lack of ongoing professional development to classroom management issues, and from too few resources to a lack of support from administrators, there are too many reasons not to teach. We must find ways to make the teaching profession more attractive so that prospective educators will choose to be science teachers -- and more importantly -- we must mentor and coach beginning teachers so that they will remain in the classroom once they arrive."

The survey also asked science teachers if their school district was seeking teachers certified through the alternative certification process. About 53 percent said their district was seeking these teachers. When asked about recruiting measures, just over 72 percent indicated that their district was not offering incentives or using other aggressive recruiting measures to attract qualified science teachers. The results come at a time when many news reports indicate a continued -- and heightened -- need for science educators in many states, including Florida, Maryland, North Carolina, and Virginia. "There has always been a high demand for science teachers, but in light of the No Child Left Behind Act, which requires all teachers to be highly qualified by 2005, the situation will only worsen," said NSTA Executive Director Gerry Wheeler. For more information, visit www.nsta.org.

Triangle Coalition Electronic Bulletin
October 28, 2004 Volume 10, Number 40

NOTICE: This is the last issue of the NewsLetter that will be mailed to individuals who do not renew their membership.

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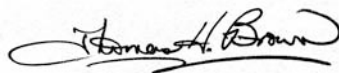
PRESIDENT'S CORNER

The New Jersey Academy of Science is proud to be completing our fiftieth year of active work in NJ. Fifty years ago, corporate professionals and academicians saw the need to encourage the furthering of scientific research and education in NJ. They founded the NJAS and since then thousands of hours have been invested by our members and many awards and grants have been given to deserving students, all with the intent to encourage and nurture the scientists and science educators of tomorrow.

In looking ahead to the next fifty years, it is clear that the demands and challenges that lay ahead require renewed effort and commitment. The demands on the scientific community to meet a variety of global technological challenges have never been greater. Our national leaders today view the application of scientific breakthroughs as the solution to many unidentified challenges to be faced in the next fifty years. New Jersey stands at the forefront of much of this research.

It is the Academy's intention to lead the way in addressing tomorrow's scientific needs by focusing our attention and programs on scientific research to address corporate needs, continued training and retention of science educators, and exciting the imaginations of today's students for science.

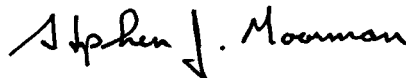
Our aggressive plans require the diligence of the Academy leaders, numerous volunteers helping with annual activities, membership fees, and generous donations from corporate, and life members. Take an active role by joining us in our effort to stimulate science research, education, and prepare the next generation of scientists and science educators.



Thomas H. Brown, President

EDITOR'S CORNER

This issue of the NewsLetter marks my first as Editor. Nancy Stevenson did a great job as Editor of the NewsLetter for many years and I am indebted to her for her support during my initiation as Editor. This issue of the NewsLetter includes two new feature, an "Ask A Scientist" column and "Did You Know That..." teasers at the bottom of some pages. The AAS column is your chance to ask scientific questions (at any level) and to ask questions about the processes of actually doing science. Additional columns that are planned include a listing of recent awards and honors received by NJAS members. If you have recently received an award or know a member who has, send me an email message for inclusion in the NewsLetter. Beginning with this issue, an electronic version of the NewsLetter will be available on the NJAS website at the same time that the hardcopy is mailed to the membership. Look for it at: www.njas.org/current.htm.



Stephen J. Moorman, Editor

SEMINAR SERIES FOR K-12 TEACHERS ON BIOSCIENCE & THE HUMAN HEART

The Merck Institute for Science Education and the Franklin Institute have announced a free seminar series for K-12 educators for the current academic year. The workshops will focus on immediate, practical application of new ideas, linking theory with practice, and provide K-12 teachers of science with access to information and resources. The seminar series provides an opportunity for in-service educators to earn continuing education credits in Pennsylvania and New Jersey. All workshops will be held at the Harcourt Teacher Leadership Center and the Harcourt Learning Labs, two state-of-the-art "professional homes" for educators located at the Franklin Institute.

This year's seminar series features current issues in bioscience and will consist of seven sessions. Two sessions will feature interactive experiences where teachers are engaged with science content as learners featuring Healthy Heart Resources/Activities for K-12 Classrooms. Three sessions will feature guest speakers who will share their expertise in a heart-related subject area. Two sessions will feature unique experiences that teachers will have access to remotely. Whenever possible, sessions will feature live on-line video interaction with scientists in biomedical laboratories. In celebration of the new bioscience exhibit, "The Giant Heart: A Healthy Interactive Experience," sponsored by Merck & Co., Inc., all workshops will include a behind-the-scenes guided tour of the new exhibit. Registration details are available at www.fi.edu/htlc.

ASK A SCIENTIST

Q: How can you dissect a chicken, specifically the leg and thigh area? Lisa Kiani, Grade 9

A: There is an excellent text that describes the anatomy of the domestic birds: Sisson and Grosman's *The Anatomy of the Domestic Animals* (1975, 5th Edition, Saunders Publishing Company). Unfortunately, this book is now out of print. Your Veterinarian might have a copy since it is a major reference book in Veterinary Medicine. Call around and find a local veterinarian who is willing to loan you a copy.

To dissect the pelvic limb of the chicken, you have 3 choices: a freshly killed chicken, a preserved chicken, or a cooked chicken. Believe it or not, I prefer to dissect the cooked chicken it is actually easier to dissect than either a fresh one or a preserved one. If you get a chicken from a farmer or a butcher,

you have a better chance of being able to get one with all of the structures of the distal limb intact. If you bake the chicken in a covered pot at about 350 degrees for a little over an hour, the limbs will be lightly cooked and easier to dissect. Let the chicken cool and then remove the skin from the trunk and pelvic limb. You should then be able to see that there are distinct lines of loose tissue separating individual muscles. You can tease along these lines and separate the muscles and make the dissection look very similar to the illustrations in the book. This will help in identifying the muscles.

While you are dissecting the muscles, don't ignore the nerves and blood vessels. In the thigh you will find one large nerve, the ischiatic nerve, and two smaller nerves the femoral and obturator nerves. The femoral nerve innervates the muscles of the front of the thigh and the obturator nerve innervates the muscles of the medial thigh. Everything else is innervated by the ischiatic nerve. This nerve will branch into the tibial nerve, which will innervate all of the muscles on the posterior aspect of the limb, and the fibular nerve, which will innervate all of the anterior and lateral muscle. You should also be able to see many smaller branches coming off of these three nerves and going into individual muscles. By and large, these branches are named based on the muscle they go to. For instance, the nerve to the flexor hallucis longus. That's a nerve that innervates a long muscle that flexes the first digit of the foot.

The blood vessels are a bit easier than the nerves because by and large they are all branches of the femoral artery. There is an obturator artery that accompanies the obturator nerve and provides blood to the same muscles that the nerve innervates. The femoral artery will travel with the femoral nerve until the knee where it will dive deep and join the tibial and fibular nerves.

I hope you have fun with the dissection and remember, when you are finished, you can eat the chicken (this only works if you are using a cooked one and the meat is thoroughly cooked).

Stephen J. Moorman, Ph.D.

Associate Professor

Robert Wood Johnson Medical School

Submit your question for the *Ask A Scientist* Column by emailing them to Moormasj@UMDNJ.edu

Did you know that...

a substance found in human urine stimulates chickens to lay larger eggs and improves their memory? The substance, 2-methoxy-3-isobutylpyrazine is also used as a flavor enhancer in some processed foods.

HIGH SCHOOL SCIENCE AND MATH RESEARCH PROPOSAL REVIEWERS NEEDED

The New Jersey Academy of Science's Grants-In-Aid Program requests your help to review a few, short research proposals

The Junior Division of the New Jersey Academy of Science (NJAS) sponsors a AAAS-funded Grant-In-Aid Program whereby high school students submit a 4 page research proposal seeking funds for their proposed science or math experimental projects. Annually, NJAS awards grants up to \$100 to the highest ranking proposals to fund supplies and equipment for these student projects.

This call for proposal reviewers asks that you agree to review up to five, 4 page research proposals. Proposals will be sent out for review around Thanksgiving 2004 and reviewer's rankings (according to preset criteria and numeric scoring) are due back by Christmas. This year the process is streamlined. Reviewers who agree to evaluate proposals will receive the student proposals as an email attachment from me, the program Chair, along with the scoring sheets and evaluation criteria. Once the proposals are judged, all you the reviewer needs to do is email me back your scoring sheets.

If you feel you would like to participate in this rewarding program or wish to know more, please email me at: llorentzen@hotmail.com This call for reviewers expires 15 Nov 2004. *When emailing your agreement to serve as a reviewer, please include the following information: your name, email address and phone number as well as area(s) of expertise (select as many as you wish from the list below).*

Biochemistry	Molecular Biology
Cell Biology	Marine Biology
Microbiology/Immunology	Mathematics
Physics	Chemistry
Physiology/Medicine	Neuroscience
Developmental Biology	Engineering
Botany	Computer Science
Zoology/Animal Behavior	Geology/Meteorology
Psychology/Human Behavior	Genetics
Environmental Science/Ecology	

For answers to questions about the GIA Program, contact Laura Lorentzen, GIA Chair
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AAAS 2005 ANNUAL MEETING

Washington, DC will be the site of the 2005 The American Association for the Advancement of Science (AAAS) Annual Meeting, to be held from 17-21 February. AAAS is a nonprofit professional society dedicated to the advancement of scientific and technological excellence across all disciplines, and to the public's understanding of science and technology. AAAS is among the oldest scientific societies in America, having been founded in Philadelphia in 1848. Given the setting for the 2005 AAAS Annual Meeting in Washington, DC, discussions are expected to include science policy matters such as the US Congress's view of science and technology ranging from the vanishing safety net for food security to research without consent. But, the proposed 2005 session tracks also will cover a rich array of other issues, including environmental questions of particular relevance to the Chesapeake Bay region, reproduction and regeneration science from aging and stem-cell research, tissue engineering, and more. With 2005 declared the World Year of Physics, the AAAS Meeting also will provide insights to physical science frontiers and the latest findings from planetary explorations as well as networking opportunities for researchers. Young and senior scientists alike will take part in a physics-themed social mixer. Hearings on topics that affect young scientists will provide a forum for open discussions. Workshops ranging from grant-writing to writing children's books also will be offered in 2005. In addition, teachers will be invited to earn continuing education credits. Free public events will continue to be a highlight at the AAAS annual meeting. On the exhibit floor over the weekend, Family Science Days will again offer hands-on workshops, demonstrations and a health fair, coupled with a fun, interactive scavenger hunt.

The New Jersey Academy of Science proudly announces that the following students and teachers will be representing the NJAS at the AJAS/NAAS/AAAS Meeting in Washington DC. Congratulations to the following delegates: From High Tech High School; Teacher - Michael T. Roche; Students - Danielle Dai, Kenny Liu, John Servedio, Alexis Sowuleski, and Christopher Janover; From Ocean Twp High School; Teacher - Aparna Amiss; Students - Michele Edelmann, Spencer Friedman, Garrett Raczek, Jennifer Chiu, Luisa Garcia.

Did you know that...

each cell in your body has an estimated 6 to 8 feet of DNA?

THE NEW JERSEY SCIENCE CONVENTION

The New Jersey Science Convention is co-sponsored by the New Jersey Science Teachers Association and the New Jersey Science Education Leadership Association and continues to be the second largest annual convention for teachers in the State of New Jersey.

The 2004 Science Convention attracted over 2,600 professional educators, and about 140 exhibitors. More than 270 Professional Development workshops or seminars were held during this two-day event.

This year the New Jersey Academy of Science had a booth in the exhibit area and conducted a Professional Development workshop, entitled "Support For Research/Inquiry-Based Projects For High School Science Students." The workshop described provided basic information for high school teachers about support for student research through the NJAS. The workshop was co-presented by Dr. Sharon Sherman, Director of the Junior Academy and Mr. Thomas Brown, current NJAS President. During the two-day conference, Dr. Alan Antoine, Mrs. Sabera Munshi, and Mr. Thomas Brown supported the NJAS booth.

It was estimated that over 250 teachers came by the booth to learn about the work of the Academy, specifically the Junior Academy's Grant-In-Aid and Science for Breakfast programs. Each teacher was encouraged to enter a drawing for one year free membership in NJAS.

The winner of the drawing was Texanna Thompson who teaches biology at Malcolm X Shabazz High School, Newark, NJ.



Dr. Alan Antoine (right) in discussion with several science teachers

Did you know that...

Somerset County in New Jersey has the highest per capita number of scientists of any county in the US?

THE BULLETIN: CALL FOR MANUSCRIPTS

Individuals seeking publication of their work are urged to consider submitting their manuscripts to *The Bulletin*, The peer-reviewed journal of the New Jersey Academy of Science. We are currently on a twice-yearly publication schedule, which consists of a spring and a fall issue.

Original papers and reviews in any field of science are considered for publication. Manuscripts should be submitted to Dr. Michael Kennish, Editor, Institute for Marine & Coastal Sciences, Rutgers University, 71 Dudley Rd. New Brunswick, NJ 08901. Instructions for contributors are printed on the inside back cover of each issue of *The Bulletin* and are now available on the NJAS website (www.NJAS.org), in the Bulletin section. Anyone having questions about the review and/or publication process should contact the editor at (732) 932-6555, ext. 240 or kennish@imcs.rutgers.edu.

NJAS WEBSITE UPDATED

The NJAS website has recently undergone a facelift to be more visually appealing and easier to navigate. The work was done by a group of talented students that included Anum Azam, Elaine Lee and Danielle Dai from High Technology High School in Monmouth County under the supervision of Mr. Michael Roche from High Technology High School and Dr. Louise Wootton at Georgian Court University. Check it out at www.njas.org.

NEW NJAS OFFICE MANAGER

NJAS welcomes Sabera M. Munshi as the new office manager. Ms. Munshi has been a resident of Edison, NJ for nearly two decades and is married with children. She holds a Bachelor of Science degree in Chemistry from the University of Bombay and has held positions at Rutgers University in the Division of Life Sciences, the Bureau of Biological Research, and the Division of Financial Data Control.

49TH ANNUAL MEETING

The 49th Annual Meeting of the Junior and Senior Academies of the New Jersey Academy of Science was held on April 3, 2004 at Fairleigh Dickinson University in Madison, New Jersey. A special edition of the NewsLetter was devoted to publishing the abstracts for the award-winning oral presentations given by members of the Junior Academy at the Annual Meeting. That issue can be downloaded from the NJAS website at: www.njas.org/current.htm

ANNOUNCEMENTS

Complete sets of both the journals BioScience and American Scientist from 1995 through 2003 are available for donation to an appropriate non-profit educational organization. The only cost to the institution would be an acknowledgment letter thanking the donor and shipping arrangements (if the journals are not picked up in New Brunswick). Contact Jim Quinn at quinn@aesop.rutgers.edu to express an interest or to request additional information.

CALENDAR OF EVENTS

Mathematical Society of America

NJ Section Meeting
Saturday, November 13, 2004
The College of New Jersey

American Statistical Association (ASA)

60th Annual Deming Conference on Applied
Statistics 12-6-04 to 12-10-04,
Tropicana Casino and Resort
Atlantic City, NJ
Walter R. Young; 484-865-5640;
youngw@wyeth.com
Satish Laroia; 973-812-9033;
satish.laroia@amide.com

20th Annual New Jersey Environmental Education Conference

January 6 - 8 , 2005
Rider University, Lawrenceville, NJ

Workshop for Secondary School Science Teachers

February 16, 2005.
New Jersey Institute of Technology, Newark, NJ
Contact Cindy Wos at wos@adm.njit.edu.

NJIT High School Programming Contest

Friday February 25th, 2005
New Jersey Institute of Technology, Newark, NJ

50th Annual Meeting NJAS

April 2, 2005
New Jersey Institute of Technology, Newark, NJ

NJ Chemistry Olympics

May 4, 2005
New Jersey Institute of Technology, Newark, NJ
Entry deadline is March 1
Contact info available through: www.njit.edu/Chem/

MidAtlantic Regional Meeting American Chemical Society

May 22-25, 2005
Rutgers Busch Campus, New Brunswick, NJ

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Beck Hall, Room 215
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