The Governor's School of New Jersey

Application for the

2014 Governor's School in the Sciences

at Drew University

July 13 – August 2, 2014

PLEASE READ ENTIRE PACKAGE.
APPLICATIONS THAT ARE INCOMPLETE WILL NOT BE CONSIDERED.

PROGRAM OVERVIEW

The Governor's School in the Sciences (GSS) brings the best science and mathematics students of the state together for a three-week summer residential program held on the campus of Drew University. The program exposes these exceptional scholars to courses, laboratories, team projects, and special lectures that encourage them to explore a career in science and math. This is enhanced by a Career Day, where alumni join other professionals in sharing their experiences.

There are no examinations or grades, and the program emphasizes group learning and collaboration in the work and study students do during the program. The program seeks to create an atmosphere of collaboration, study, and socializing in the residence hall through activities supervised by staff who promotes the concept of a community of interested scholars. Consequently, scholars experience a taste of what college will be like.

The program is free of tuition and fees. Funds are raised from private and corporate sponsors. Scholars for this summer's program are selected based on the excellence of their academic performance, written essays, standardized test scores, math and science teacher recommendations, and extracurricular activities in and out of science.

ELIGIBILITY

To be considered for the Governor's School in the Sciences, a student must meet the following criteria:

- The student must be a New Jersey resident and be a high school junior during the 2013-2014 school year.
- The student must have a very strong interest in the sciences and be committed to the acquisition of knowledge and the pursuit of opportunities in that field.
- The student must be willing to live on campus for the duration of the program. Saturdays and Sundays make up part of the program; there will be no weekend leaves of absence.
- The applicant must be one of the top students in his or her school. The student should have primarily "A" grades in honors math and science classes and outstanding scores on standardized achievement tests. Students who have demonstrated very strong scientific abilities outside the classroom can also be strong candidates for the Governor's School in spite of weaker standardized test scores. Competitive candidates often rank in the top 5% of their class and score above the 90th percentile on standardized tests. A student whose standardized test scores are below the 90th percentile but rank among the best in his/her school may still apply if he or she is otherwise qualified.

The Governor's School encourages all qualified applicants regardless of sex, race, color, creed, national origin, or physical handicap.

PROGRAM DESCRIPTION

Core courses in a variety of different areas of science and mathematics (anthropology, biology, chemistry, mathematics, physics) address aspects of science and mathematics not usually seen in either high school or in the first year of college. Each student takes three core courses. The core courses offered in 2013 were:

- *Concepts of Chemical Bonding: An Introduction to Molecular Orbital Theory*
- *Cell Biology and Cancer*
- *Special Relativity*
- *Neurobiology*
- *Rulers, Compasses, and Famous Impossibilities*
- *Biological Anthropology: Human Evolution*

Laboratory courses provide the scholars with innovative experiments. Each scholar takes one lab course. The 2013 labs were:

- Experiments in Biology
- Experiments in Organic Chemistry
- Experiments in Computer Science
- Experiments in Archaeology
- Experiments in Biochemistry

Team Projects provide scholars with the opportunity to work in small teams under faculty guidance on mini-research topics. Results are presented at the Scholars Conference. There were eight team projects in 2013:

- *Project in Mathematical Physics – Celestial Mechanics*
- *Project in Psychology – Cognitive Illusions*
- *Project in Microbiology – Green Tea: The Spice of Life – Use of Herbs and Spices as Antimicrobials*
- *Project in Psychology and Neuroscience – Olfactory Learning and Memory*
- *Project in Chemistry – Controlled-release Kinetics: Modeling Small Molecule Movement Across a Polymer Membrane*
- *Project in Archaeology – Reconstruction Technologies: Volcanic Materials and the Secrets of Ancient Ecuadorian Pottery Engineers*
- *Project in Cognitive Science – Analysis of Eye Movements*
- *Project in Ecology – How will global warming affect future plants? Effect of increased carbon-dioxide, temperature, and water on plants*

Special Events include colloquia speakers, Career Day, Talent Show, and the Scholars Conference. Colloquia speakers at the 2013 program were:

- Dr. Jay Mancini, Physics Professor at Kingsborough Community College, visiting Research Professor at Stevens Institute of Technology, former visiting Professor at University of Zurich: *What Einstein Forgot to Tell Us*
- Dr. Ron Doll, Fellow in the Research Institute for Scientist Emeriti (RISE) at Drew University, former Research Medicinal Chemist with Schering-Plough Research Institute, former Director fo Chemical Research, now retired form Merck Research Laboratories: *Molecules that Changed the World – The Discovery of Lonafarnib*
- Mr. Ron Ruemmler, former Math Professor, now retired from Middlesex County College and currently a member of the Executive Board of Central New Jersey Mensa: *A Mathematical Analysis of Romantic Love*

THE SELECTION PROCESS

To apply for the Governor's School in the Sciences, a student must be nominated by his or her high school's nominating committee. If the high school's junior class contains at most 325 students, only one student may be nominated for each Governor's School program. If the high school's junior class has between 326 and 650 students, two students may be nominated for each Governor's School program. Three students may be nominated only if the junior class comprises more than 650 students.

Students chosen by their high school's nominating committee are termed "nominees." The nominee is responsible for completing all parts of the application, ensuring that all necessary supplements (including transcripts, copies of PSAT scores, and the principal's signature) are in order, and verifying that the application has been submitted by the high school before the deadline. The application must be mailed by the high school, not the applicant, and sent **directly to Drew University** at the following address. **Applications must be postmarked on or before January 10, 2014.** ***DO NOT FAX APPLICATIONS!***

Governor's School in the Sciences
Drew University
36 Madison Avenue
Madison, NJ 07940

The Governor's School will confirm receipt of the application by late-February in an email to the applicant. Please note that incomplete applications (missing any required document) will not receive full consideration. At Drew University, a panel of professors, researchers, and educators will review nominees' applications. Using the criteria below, this panel will choose the Governor's Scholars and invite those students to attend the Governor's School. **The committee's decision will be emailed to the student on April 4, 2014.** The admissions process is very competitive; in recent years, 15% - 25% of nominees have been offered admission.

SELECTION CRITERIA

The selection committee for the Governor's School in the Sciences aims to craft a student body made up of New Jersey's most talented and enthusiastic students. Our student body should be diverse in myriad ways. Our students should possess a great range of gifts in technology, the arts, humanities, and the sciences. Overall, the committee chooses the students who will best take advantage of the opportunities presented by the Governor's School.

Decisions are based on the following qualitative and quantitative criteria:

- The student's high school transcript and class rank, which should demonstrate that the student is at or near the top of his or her class.
- The student's essays and reasons for wanting to attend the Governor's School.
- Letters of recommendation from science and math teachers.
- The student's extracurricular activities and community service pursuits.
- The student's academic and extracurricular honors and accomplishments.
- The student's standardized test scores (PSAT preferred).

We expect Governor's School scholars to exhibit great creativity and a unique passion for the nature of our Governor's School. We look for students who have shown a strong interest in science and mathematics, as well as an open mind and the ability to work on a team to explore these interests further. We want to know what a student hopes to gain from the Governor's School experience, as well as what he or she hopes to contribute to the program. In general, students who have demonstrated a fervent interest in science and mathematics both inside and outside of the classroom will be most successful in the admissions process. A student with perfect standardized test scores but only superficial interest in the nature of the school is not a competitive candidate. Of course, our scholars are not only devoted to science, but also have outstanding test scores and rank at the absolute top of their class. We are privileged to choose the best of the best.

CONTACT INFORMATION

Dr. Adam Cassano & Dr. Steve Surace, Co-Directors

Anna Mae Dinio-Bloch, Administrative Manager

Web: http://www.drew.edu/govschool *(Sciences only)*
http://www.nj.gov/govschool/ *(all programs)*
Telephone: (973) 408-3605
Email: govschool@drew.edu

Postal Mail: Governor's School in the Sciences
Drew University
36 Madison Avenue
Madison, NJ 07940

APPLICATION INSTRUCTIONS

Step 1: Review the program information and descriptions in this packet.

Step 2: Complete the Application Cover Sheet page (page 5 of this packet). Follow the instructions for the online Student Application Information form. After you have completed and submitted the form, print it, and attach it to the cover sheet. **(If the printed online Student Application Information form is missing, your application will not be processed.)** The cover sheet should be the first page of your submitted application.

Step 3: Include the Application Checklist (page 6 of this packet), as the second page of your application (after the cover sheet and printed online Student Application Information form). Portions of the check list must be completed by your school principal.

Step 4: After the Checklist, attach a list of your extracurricular activities in order of their importance to you, with emphasis on activities requiring a substantial amount of your time. These can include school sponsored activities, work experience, community service, as well as science, artistic or athletic programs. Be sure to include leadership roles you hold in any of these activities and the amount of time you spend on these activities. Along with this list, please note any honors (academic or extracurricular) that you have received.

Step 5: Include answers to each of the following essay questions. ***EACH ESSAY IS TO BE NO LONGER THAN 650 WORDS.***

> Essay 1) Attach an essay focusing on your scientific interests and aspirations, including any experiences that led to these interests.
>
> Essay 2) Discovery is the hallmark of science. Attach an essay describing one discovery in science or math and the impact it has had on its field.

Step 6: Include 2 recommendation letters after the essays, one from a science teacher and one from a mathematics teacher. The applicant must make sure that their teachers refer to our website http://www.drew.edu/govschool/about-njgss and go to "The Application" section for guidelines on what information should be included in their recommendation letters.

Step 7: Verify that your high school will include your official transcript, including junior year grades, and official 2013 PSAT scores. If you did not take the PSAT in 2013, include your 2012 scores. You may include your SAT scores if you have not taken the PSAT. If you have taken neither the PSAT nor the SAT, be sure your principal indicates this on the checklist.

Step 8: If your junior year grades or junior year PSAT scores are not available at the time you submit your application, your school should forward them to the selection committee at Drew University once they become available, but no later than mid-February.

Step 9: Once your application is complete, it is your responsibility to verify that the application has been mailed by your high school to Drew University by the **January 10, 2014** deadline.

DATES TO REMEMBER

January 10, 2014: Completed applications must be mailed by the high school to Drew University and postmarked by this date. **APPLICATIONS THAT ARE POSTMARKED AFTER THIS DATE WILL NOT BE CONSIDERED.**

By late February, 2014: You will receive an email confirming the receipt of your application.

April 4, 2014: You will receive an email announcing the selection committee's decision.

July 13 to August 2, 2014: The Governor's School in the Sciences will be in session on the campus of Drew University.

The Governor's School of New Jersey

2014 GOVERNOR'S SCHOOL IN THE SCIENCES
at Drew University

Application Cover Sheet

Student Name (PRINT): _____

Student Email (PRINT): _____

School Name (PRINT): _____

Please visit the Governor's School in the Sciences website at:

http://www.drew.edu/govschool/

Follow the link to the 2014 Student Application Information form:

1. Complete and submit this form.
2. Be sure to print the confirmation screen after submitting the form.
3. Attach the printed document to this page.

Note: Applications missing the printed Online Student Application Information form will not be processed.

IMPORTANT DATES

January 10, 2014
Application postmark deadline

April 4, 2014
Admissions decisions announced by email

July 13 – August 2, 2014
The Governor's School in the Sciences in session

STUDENT AND PARENT CERTIFICATION

___ I am a resident of New Jersey.

___ I expect to be a high school senior in the 2014-2015 school year.

___ I am willing and able to attend the entire Governor's School session.

_____ _____
Signature of Student *Date*

This is to certify that I give my permission for the student named above to participate in the Governor's School in the Sciences at Drew University, in full-time residence.

_____ _____
Signature of Parent/Guardian *Date*

APPLICATION CHECKLIST
(Please include as Page 2 of your application)

NOMINEE'S CHECKLIST: ***INCOMPLETE APPLICATIONS WILL NOT BE CONSIDERED.***

___ I've included the Application Cover Sheet and printed copy of the online Student Application Information form as Page 1 of my application.

___ I've included this checklist as Page 2 of my application.

___ I've attached a list of my extracurricular activities and my extracurricular and academic honors.

___ I've included responses to two essay prompts as per the Application Instructions on Page 4.

___ I've attached two letters of recommendation as per the Application Instructions on Page 4.

___ My school has included my official high school transcript and copies of my official PSAT (or other standardized test) scores.

___ I am a resident of the state of New Jersey and will complete my junior year of high school in June 2014.

___ I have kept a copy of my application for my own records. If my current PSAT scores or transcript were not included, my school will forward them to Drew University once they become available but no later than mid-February.

I have reviewed the checklist above, and have included all necessary and appropriate application materials. All of the information submitted as part of my application is factual and truthful to the best of my knowledge.

_____ _____

Name of Nominee (please print) Nominee's Signature

PRINCIPAL'S CHECKLIST:

___ The nominee is one of our top students and has expressed a strong interest in the Governor's School in the Sciences.

___ Our school has nominated the correct number of students. (If the junior class has 1 – 325 students, 1 nominee is permitted for each Governor's School program. If there are 326 – 650 students, 2 nominees are permitted for each Governor's School program. If there are more than 650 juniors, 3 nominees are permitted for each Governor's School program.)

___ The nominee has included his or her Application Cover Sheet with the printed online Student Application Information form attached, this checklist, a list of activities and honors, essay responses, and two letters of recommendation.

___ I have included the nominee's high school transcript and copies of his or her PSAT (or other standardized test) scores.

- ___ The transcript includes grades from the first marking period of the 2013-2014 school year.
- ___ I will forward his or her junior year grades to the Governor's School once they become available but no later than mid-February
- ___ I have included the student's 2013 PSAT scores. (Preferred)
- ___ The student did not take the PSAT in 2013. I have included his/her 2012 PSAT scores.
- ___ The student has not taken the PSAT. I have included the student's SAT scores.
- ___ No PSAT / SAT scores are available for this student.

___The nominee is a conscientious and eager student, and ranks near the top of his/her class.

___The nominee's standardized test scores are among the best in our school. The most competitive candidates have test scores above the 90th percentile, although students with lower scores may apply if they are otherwise a strong candidate.

___ This student has not been nominated to more than one Governor's School.

___ The nominating high school has kept a copy of this application on file.

___ One letter of recommendation is from a science teacher; the other is from a mathematics teacher.

I have reviewed the checklist above, and have included all necessary and appropriate application materials. All of the information submitted as part of this application is factual and truthful to the best of my knowledge.

_____

Name of Principal (please print)

_____

Principal's Signature