

Center for Gifted Youth

Fall and Spring 2014-2015

October 11 – December 20, 2014

January 31 – April 25, 2015



LIU Post

Center for Gifted Youth

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www.liu.edu/post/giftedyouth



THE LONG ISLAND UNIVERSITY CENTER FOR GIFTED YOUTH
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Dr. Lynne Manouvrier, Director
Mr. Henry Mazer, Headmaster

Calendar

Fall Semester 2014	Spring Semester 2015
October 11 – December 20, 2014 9:00 A.M – 11:55 A.M.	January 31 – April 25, 2015 9:00 A.M – 11:55 A.M.
October 11	January 31
October 18	February 7
October 25	February 14 CLOSED Presidents Week
November 1	February 21
November 8	February 28
November 15	March 7
November 22	March 14 CLOSED Spring Break
November 29 CLOSED Thanksgiving	March 21
December 6	March 28
December 13	April 4 CLOSED Easter
December 20	April 11
	April 18
	April 25
	SNOW DATE May 2



***PLEASE SEE ADMISSION GUIDELINES ON OUR WEBSITE IF YOU WOULD LIKE TO APPLY TO THE GIFTED YOUTH PROGRAM**

Tuition & Deposit

Full tuition for the Saturday program is \$1,700.00 for each 10-week semester, plus lab fees (see next page).

The tuition includes an \$850 non-refundable deposit per semester to be paid when you register your child. We strongly recommend registering your child/children for both fall and spring semesters at this time. We believe this improves your child's experience by providing continuing friendships among students and allowing us to plan in advance for the needs of the individual. Registering for both semesters may also prevent your child from being closed out of the program in the spring.

**THE FALL 2014 TUITION IS \$1,700.00
THE SPRING 2015 TUITION IS \$1,700.00**

The LIUCGY office handles all deposits, tuition, and fees.

If we are unable to place your child because classes are full, the deposit will not be charged.

Refund Policy

- If you wish to withdraw your child from the Center for Gifted Youth prior to the start of the semester, the tuition minus the deposit may be refunded.
- The only circumstance in which the deposit will be refunded is if the student becomes seriously ill before the start of the semester and a doctor's note is provided.
- Assignment to any course chosen by your child on the registration form commits her/him to attend. Therefore, choose only courses that will be suitable for your child.
- All withdrawal requests must be made in writing.
- Once the semester has started, there will be no refunds.
- Tuition must be paid by the due dates listed in the Tuition and Deposit section of this registration, or your child will be removed from classes for that semester and your deposit will be forfeited.
- Under no circumstances will deposit or tuition payments be applied to another student or another semester.

Laboratory Fees

A laboratory fee of \$30.00 per science course will be charged to all students registered for science courses. These fees should be paid by separate check only after registration is confirmed and will be due at the same time as the tuition balance for that semester. Send no lab fees at this time.



FALL 2014

K-1 Saturday Express: Science, Mathematics, and Humanities

The Saturday Express is a program of exploration and discovery in science, mathematics, and the humanities. Students will be exposed to challenging ideas and concepts rarely introduced or explored in Kindergarten and Grade 1. They will be provided with hands-on learning experiences by expert instructors in mathematics, science, and the humanities, appropriate to gifted children.

NOTE: *Students in grades 2 through 6 attend three classes of their choice.*

GRADES 2-3

FALL

Digital Journalism

Geo-Art

Geology: The Restless Earth

Investigations in Biological Science II

Mathematical Problem Solving

GRADES 4-6

FALL

Advanced Math Problem Solving

Biology: The Ecology of Long Island

Chemistry in Our Lives

Engineering: Dynamics and Methods

Law and Entertainment

Writing: Fantasy and Science Fiction

GRADES 6-8

FALL

Pioneers of Modern Physics

Law and Psychology

Math: Brain Games

The Biology of Environmental Science

The Socratic Seminar

Meteorology: Climate Change and Weather Extremes



FALL 2014 | CLASS SCHEDULE

Time	FALL October 11 th – December 20 th , 2014
Kindergarten -1 9 A.M. – 11:55 A.M.	Saturday Express: Science*, Mathematics, Humanities
Grades 2-3 Period 1 9 A.M. – 9:55 A.M.	Digital Journalism Geo-Art Geology: The Restless Earth* Investigations in Biological Science II* Mathematical Problem Solving
Grades 2-3 Period 2 10:00 A.M. – 10:55 A.M.	Digital Journalism Geo-Art Geology: The Restless Earth* Investigations in Biological Science II* Mathematical Problem Solving
Grades 2-3 Period 3 11A.M. – 11:55 A.M.	Digital Journalism Geo-Art Geology: The Restless Earth* Investigations in Biological Science II* Mathematical Problem Solving
Grades 4-6 Period 1 9 A.M. – 9:55 A.M.	Advanced Math Problem Solving Chemistry in Our Lives* Engineering: Dynamics and Methods* Law and Entertainment
Grades 4-6 Period 2 10:00 A.M. – 10:55 A.M.	Advanced Math Problem Solving Biology: The Ecology of Long Island* Chemistry in Our Lives* Writing: Fantasy and Science Fiction
Grades 4-6 Period 3 11A.M. – 11:55 A.M.	Biology: The Ecology of Long Island* Engineering: Dynamics and Methods* Law and Entertainment Writing: Fantasy and Science Fiction
Grades 6-8 Period 1 9 A.M. – 9:55 A.M.	The Biology of Environmental Science* The Socratic Seminar
Grades 6-8 Period 2 10:00 A.M. – 10:55 A.M.	Pioneers of Modern Physics* Law and Psychology
Grades 6-8 Period 3 11A.M. – 11:55 A.M.	Math Brain Games Meteorology: Climate Change and Weather Extremes*

***Science Fees Apply**



SATURDAY COURSE DESCRIPTIONS

Please note that different topics are explored each semester (fall, spring, and summer), even though the course titles and academic areas may be similar.

SATURDAY EXPRESS: GRADES K-1 SCIENCE, MATHEMATICS, HUMANITIES FALL/SPRING

The Saturday Express is a program of exploration and discovery in science, mathematics, and the humanities. Students will be exposed to challenging ideas and concepts rarely introduced or explored at the early childhood level. They will be provided with hands-on learning experiences by expert instructors in their field at a depth and pace appropriate to gifted children.

One class will emphasize mathematical thinking. Students will be encouraged to problem solve while having fun with shapes and numbers, as well as learn a variety of mathematical concepts. Another class will highlight the exploration of individual thematic units in science. The third class will emphasize the humanities, integrating literature, social studies, and the cultural arts, in interdisciplinary study.

Maximum attention is provided to each child in a setting that encourages risk-taking and independent thought and action. Children are also given many opportunities to interact both intellectually and socially. These courses are designed so that students can participate for four consecutive semesters without repeating content.

Different materials are introduced and different topics are explored each semester. The use of Roman numeral designations does not indicate levels of difficulty; they merely indicate different learning experiences. There are no prerequisites for any of these courses.



FALL 2014 | COURSE DESCRIPTIONS

GRADES 2-3

Computers and Humanities

DIGITAL JOURNALISM

This course is designed to introduce students to the role of the news reporter. Under the guidance of the instructor and using the computer facilities of the University, students will work independently or in collaborative pairs to investigate people, places, and international events. Student will learn techniques of news, feature, sports, writing and producing.

GEO-ART

This is a course in the skill of visual perception as it involves discovering forms and patterns in works of art. Students will become aware of how geometry can be used both to create and understand art especially as it includes the works of Escher, Picasso and other 20th century masters. Students will have an opportunity to create their own examples of "Geo-Art."

Mathematics

MATHEMATICAL PROBLEM SOLVING

This course will focus on developing effective mathematical problem solving techniques. Students will learn to identify key words, find pertinent information, and select an appropriate strategy for solving problems. They will also learn to use diagrams, models and charts to organize information. Classroom lessons will include short presentations on the various techniques used in problem solving followed by individualized, challenging exercises which will allow students to practice and improve their problem-solving abilities. Special care will be given to provide a variety of problems to meet the needs, interests, and abilities of each student. New problems are presented each semester.

Science

GEOLOGY: THE RESTLESS EARTH

In this course, students will explore the movements inside our restless earth and their relationship to volcanoes and earthquakes. Students will learn what is deep inside our earth as they take an imaginary journey to its center. A "hands-on" approach will be used as students build models of the earth's layers and volcanoes. Students will learn about the different types of volcanoes, the ring of fire, plate tectonic theory, and tips for surviving an earthquake or volcanic eruption. They will also explore what Earth was like 250 million years ago when the continents formed one super-continent, Pangaea.



INVESTIGATIONS IN BIOLOGICAL SCIENCE II

This course is designed to provide a variety of learning experiences about living things. The students will conduct investigations that show how different plants and animals are able to carry out their activities and complete their life cycles. Selected topics on the human body and its dependence on plants and animals will be investigated. An understanding of the relationships between living things and the non-living world will be developed and explored.

GRADES 4-6 Humanities

LAW & ENTERTAINMENT

In this course, students will explore the interesting and provocative relationship between the rule of law and entertainment. Students will appear as attorneys and witnesses as they role-play court cases involving Hollywood and its fascinating personalities. Proper trial techniques will be employed as students prepare for the ultimate drama of the courthouse.

WRITING: FANTASY AND SCIENCE FICTION

Science fiction as a literary form is ever increasing in popularity. Students will learn about its early creators and advocates, surprisingly long history, and its current vogue. They will read and analyze samples of the literature and try their hand at writing their own stories or skits.

Mathematics

ADVANCED MATHEMATICAL PROBLEM SOLVING

Students will participate in activities to help them develop and enhance their problem-solving abilities. They will learn to analyze and solve unique mathematical problems, identify key words, and use diagrams and tables. They will also look for patterns and develop estimation and deductive reasoning skills. Weekly activities include short teacher presentations on key techniques followed by small group and individual practice sets designed to challenge students and improve their critical thinking skills. Special attention will be provided to meet the needs, interests, experience, and ability of each student; however, students should already have a strong background in mathematics. **New problems are presented each semester.**

Science

BIOLOGY: THE ECOLOGY OF LONG ISLAND

In this course, students will study and explore the chemical, biological, and geological aspects of Long Island. Students will study the ecology of Long Island starting with the foliage. Students will collect leaf samples from the trees on campus and then use technology to identify each specimen. Students will create a leaf collection which they can take with them at the end of the semester. Other lab activities will include water pollution analysis of Long Island waters, a study of global warming and the effect it



could have on Long Island, and the effects of introducing non-native species to Long Island. Activities will allow students to walk away with a deep understanding and appreciation for the ecology of Long Island.

CHEMISTRY IN OUR LIVES

This course is designed to engage both youngsters with minimal experience as well as students with prior knowledge in the study of chemistry. Activities and discussions will be drawn from topics such as chemicals and their classification, phases and phase changes, neutralization and pH, and the interactions of energy and matter. In each instance, the objectives are to enable students to discover basic chemical concepts and principles, as well as experience the excitement and joy of scientific inquiry. Laboratory activities will be carefully supervised with safety procedures strongly emphasized.

ENGINEERING: DYNAMICS AND METHODS

This course will introduce students to the technology, methods, and mathematics needed in engineering along with graphics and drafting. Geometrical shapes in 3D will be introduced as tools for planning buildings and spaces for living. Problem solving techniques and models will be used to solve problems with the students' creations. Engineering concepts will be studied from creation to their finished product.



GRADES 6-8

LAW AND PSYCHOLOGY

Students will investigate the fascinating and complex relationship between psychology and the rule of law. Integrating legal and psychology terms as well as critical reading skills, students will decode clues provided in trial texts. They will perform intriguing court cases involving the testimony of expert witnesses in the field of psychology. The concept of what constitutes privileged communication in a court of law will be the focal point of courtroom dramas. Topics to be discussed in this course will include the role psychologists play in the creation of jury questionnaires, the evaluation of jurists by attorneys, and how psychologists assist attorneys in their presentations to juries. In addition, psychological defenses against criminal charges will be explained and evaluated.

MATH BRAIN GAMES

Students enrolled in this course will have an opportunity to explore a variety of problems and puzzles involving such topics as lateral thinking, codes and ciphers, logic, paradoxes, mathematical functions, and probability. The various challenges selected for use will be appropriate for the grade levels of the class and will allow students to apply their prior knowledge in new and exciting ways.

METEOROLOGY: CLIMATE CHANGE AND WEATHER EXTREMES

Students will be exposed to topics such as fronts and their movement, hurricane and tornado tracking, weather analysis and forecasting. Additionally, they will learn to calculate dew point, humidity, and cloud base altitude. As a culminating activity, students will research current trends in extreme weather patterns.

PIONEERS OF MODERN PHYSICS

The course will investigate the works of Thomas Young, Michelson, and Marley. The contributions of Becquerel, Curie, and Roentgen to our understanding of Modern Physics and the atom will be studied. We will see the contributions and dilemmas proposed by such scientists as J.J. Thompson, E. Rutherford, A. Einstein, A. Compton and N. Bohr. X-ray machines, CAT scans and lasers as well as holograms will be explained.

THE BIOLOGY OF ENVIRONMENTAL SCIENCE

Students will investigate the environmental impacts of biological systems. Students will perform experiments to demonstrate the interrelationships of living organisms as well as study geochemical cycles. Students will study how population growth affects the ecosystem balance. Students will build and test solar water heating systems. Students will also perform an environmental debate on a topic that they have chosen.



THE SOCRATIC SEMINAR

Centered on Socrates' belief in inquiry based learning, the Socratic seminar is a scholarly discussion of an essential question. Students will be immersed in reading non-fiction texts around global and political issues. They will then engage in formal discussion around these texts. Within the context of their discussions, students will think critically, listen closely to the arguments of others, use text-based evidence to support their claims and articulate their own points of view.



SPRING 2015

K-1 Saturday Express: Science, Mathematics, and Humanities

The Saturday Express is a program of exploration and discovery in science, mathematics, and the humanities. Students will be exposed to challenging ideas and concepts rarely introduced or explored in Kindergarten and Grade 1. They will be provided with hands-on learning experiences by expert instructors in mathematics, science, and the humanities, appropriate to gifted children.

***NOTE:** Students in grades 2 through 6 attend three classes of their choice.*

GRADES 2-3

SPRING

Forensic Science: Who Did It?
Investigations in Physical Science
Keyboard Kids: Create Your own Search Engine
Mathematical Problem Solving
The Robot Age: Rise of the Machine

GRADES 4-6

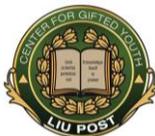
SPRING

Biology and Environmental Issues
Discovering Ancient Greece
Probability and Statistics
Rocketry and Airplane Design
World of Chemistry
Writing Mysteries

GRADES 6-8

SPRING

Environmental Science: Emerging Energies
Chemistry for Future Chemists
Modern Quantum Mechanics
Rocketry and Airplane Design
The Mathematics of Chess
Classic Mystery Writers



SPRING 2015 | CLASS SCHEDULE

Time	FALL January 31 st – April 25 th , 2015
Kindergarten -1 9 A.M. – 11:55 A.M.	Saturday Express: Science*, Mathematics, Humanities
Grades 2-3 Period 1 9 A.M. – 9:55 A.M.	Forensic Science: Who Did It?* Investigations in Physical Science* Keyboard Kids: Create Your own Search Engine Mathematical Problem Solving The Robot Age: Rise of the Machine*
Grades 2-3 Period 2 10:00 A.M. – 10:55 A.M.	Forensic Science: Who Did It?* Investigations in Physical Science* Keyboard Kids: Create Your own Search Engine Mathematical Problem Solving The Robot Age: Rise of the Machine*
Grades 2-3 Period 3 11A.M. – 11:55 A.M.	Forensic Science: Who Did It?* Investigations in Physical Science* Keyboard Kids: Create Your own Search Engine Mathematical Problem Solving The Robot Age: Rise of the Machine*
Grades 4-6 Period 1 9 A.M. – 9:55 A.M.	Discovering Ancient Greece Probability and Statistics World of Chemistry* Writing Mysteries
Grades 4-6 Period 2 10:00 A.M. – 10:55 A.M.	Biology and Environmental Issues* Discovering Ancient Greece Probability and Statistics Rocketry and Airplane Design*
Grades 4-6 Period 3 11A.M. – 11:55 A.M.	Biology and Environmental Issues* Discovering Ancient Greece World of Chemistry* Writing Mysteries
Grades 6-8 Period 1 9 A.M. – 9:55 A.M.	Environmental Science: Emerging Energies* Rocketry and Airplane Design*
Grades 6-8 Period 2 10:00 A.M. – 10:55 A.M.	Classic Mystery Writers Chemistry for Future Chemists*
Grades 6-8 Period 3 11A.M. – 11:55 A.M.	Modern Quantum Mechanics* The Mathematics of Chess

***Science Fees Apply**



SPRING 2015 | COURSE DESCRIPTIONS

GRADES 2-3

Computers and Humanities

KEYBOARD KIDS: CREATE YOUR OWN SEARCH ENGINE

Google is one of the great tools of the early 21st century. Google's mission from its beginning has been "to organize the world's information and make it universally accessible and useful." However, the results for younger students are generally not age appropriate. The solution, available through Google, is creating a custom search tool. The students will study search engines, develop their own databases, and join together to make a class search engine that is kid friendly. The end product is eye opening and valuable: a custom made Google search engine that can organize information for the benefit of others.

THE ROBOT AGE: RISE OF THE MACHINE

This course is designed to introduce students to the "age of robots," helping them understand how robots of the 21st century may change the way people live. Robots come in many shapes and sizes and have the potential to perform different tasks. Students will have an opportunity to pretend they are robotic engineers and design blueprints for robots of the future. Students will even imagine robots of the future that replace Mom or Dad's job!

Mathematics

MATHEMATICAL PROBLEM SOLVING

This course will focus on developing good mathematical problem solving techniques. Students will learn to identify key words, find pertinent information, and select an appropriate strategy for solving problems. They will also learn to use diagrams, models, and charts to organize information. Classroom lessons will include short presentations on the various techniques used in problem solving followed by individualized, challenging exercises which will allow students to practice and improve their problem solving abilities. Special care will be given to provide a variety of problems to meet the needs, interests, and abilities of each student. New problems are presented each semester.

Science

FORENSIC SCIENCE: WHO DID IT?

Due to many recent television shows and books, forensics has become very popular. This class is an introduction to the fundamentals of the science behind it. The students will learn to find fingerprints, solve puzzles, and use other activities to uncover clues to help them solve cases.



INVESTIGATIONS IN PHYSICAL SCIENCE

(New ideas are presented each semester. There are no prerequisites for this course.)

This course is designed to provide a variety of learning experiences that will introduce students to the basic concepts of Chemistry and Physics. Students will investigate such topics as air pressure, buoyancy, gravity, density of matter, temperature, heat, chemical reactions, and electromagnetism. Activities will stress the development of skills and understandings related to the physical sciences.

Grades 4-6 Computers & Humanities

DISCOVERING ANCIENT GREECE

The complex and fascinating culture of Ancient Greece will be explored to consider how traces of this civilization live on today. By reading historical accounts and exploring myths, legends and the arts, daily life and social structure, the world of Ancient Greece will be illuminated. For example, students might examine the images on a Grecian urn in order to understand a typical meal and the rituals surrounding it. In addition to group work, students will have several research options of their choosing in selecting topics which reflect the richness of Ancient Greece.

WRITING MYSTERIES

The mystery stories of Edgar Allan Poe, Sherlock Holmes, and Agatha Christie have fascinated readers for years. This course will help students understand the essential ingredients for writing a good mystery. The elements of plot, character, and action will be discussed. Students will have the opportunity to create their own mysteries and have them published in a student journal.

Mathematics

PROBABILITY AND STATISTICS

This course is designed to provide a variety of learning experiences that will introduce students to the basic concepts of probability and statistics. Students will investigate such topics as complementary events, tree diagrams, compound events, independent and dependent events, factorials, permutations, combinations, measures of central tendency, quartiles, and percentiles.



Science

*Science courses are designed so that students can participate for **four consecutive semesters without repeating content**. Different materials are introduced and different topics are explored each semester. There are no prerequisites for any of these courses.*

BIOLOGY AND ENVIRONMENTAL ISSUES

Laboratory experiences will help the students understand what environmental issues are endangering our planet. Acid rain, water clarity and cleanliness, the truth about plastics, alternate energy sources, the care of the atmosphere, and solid waste disposal are some of the issues we all need to concern ourselves with so we can create solutions. This class will discuss those issues and create scenarios proposing creative ways to address them.

ROCKETRY AND AIRPLANE DESIGN

The evolution of rocket and airplane design from the first Chinese fireworks to the space shuttle will be studied. After investigating the principles of flight, students will build and launch model rockets. Safety precautions and pre-flight testing methods will be stressed.

****Students with experience will work on more advanced models.***

WORLD OF CHEMISTRY

How are materials put together? How do chemicals behave under different conditions? What substance is it? What new substances are produced? Using the senses of sight, sound, taste, touch, and smell, students will investigate the answers to these intriguing questions. By working in our campus chemistry laboratory, students will learn chemical concepts, terminology, and laboratory methods. Experiments will involve the study of solids, liquids, gases, heat energy, and other related topics. Laboratory activities will be carefully supervised with safety procedures strongly emphasized.



GRADES 6-8

CHEMISTRY FOR FUTURE CHEMISTS

This course emphasizes, through a laboratory setting, how chemistry influences the daily aspects of our lives. Why do certain chemicals react the way they do? How does their reaction affect our daily lives? What is titration? How do various food ingredients affect the human body? Students will use their unique abilities to investigate these intriguing questions through chemical experimentation in the laboratory. Students will become familiar with scientific terminology as they study solids, liquids, gases, and other related scientific topics.

CLASSIC MYSTERY WRITING

Delve into the works of Arthur Conan Doyle, Erle Stanley Gardner, J.K. Rowling, Ray Bradbury, and other classic authors of mysteries and detective fiction. Students will have the opportunity to create their own mysteries which will culminate in the publishing of student journals.

ENVIRONMENTAL SCIENCE: EMERGING ENERGIES

In today's world, fossil fuels are becoming less abundant as well as lead to environmental damage. Students will investigate and design new technologies to combat the rising problems associated with fossil fuel use. Students will build salt water fuel cell cars and solar cars. Students will also design a system to capture geothermal energy. Students will also study the fundamentals of wind energy and design their own wind turbine.

MODERN QUANTUM MECHANICS

This course will begin with the early ideas of Quantum Dynamics and the wave-particle duality of light and investigate the works of Bohr, Heisenberg, Born, Pauli, and de Broglie. We will see how an atom is put together and how probability is used to explain reality. We will discuss the Standard Model and build some subatomic particles using our new knowledge.

ROCKETRY AND AIRPLANE DESIGN

Students will investigate the evolution of rocket and airplane design from the first Chinese fireworks, to the Boeing 777, to the Space Shuttle. After investigating the principles of flight, students will design, build and launch model rockets and airplanes. Students with experience will work on more advanced models. This hands-on program stresses theory, design, construction, and the importance of teamwork in building and launching rockets. Safety procedures will be stressed throughout the program.



THE MATHEMATICS OF CHESS

This class is designed to provide an opportunity for youngsters to explore the many and varied connections between mathematics and the classic game of chess. We will examine the mathematical foundation of the ELO rating system of chess players, how a tournament is structured in a fair way to all participants, the algebraic system of chess notation, and how chess engines allow computers to play the game at a Master level. Students enrolling in this course should already be familiar with the rules of chess as well as basic chess strategy such as center control and quick development of pieces.