



THE LONG ISLAND UNIVERSITY CENTER FOR GIFTED YOUTH
College of Education, Information and Technology
720 Northern Boulevard
Brookville, New York 11548-1300

CGY SUMMER 2014 COURSES



JUNE 30 – JULY 25, 2014

Dr. Lynne Manouvrier, Director
Mr. Henry Mazer, Headmaster



LUNCH

Students will be provided a healthy lunch at the Hillwood Commons Cafeteria.

****If your child has any severe allergies and/or allergic reactions, please provide your own lunch.***

Lunch Program

As part of the tuition, students will be served a nutritious lunch from the Hillwood Commons Cafeteria. Following lunch, a brief recess is provided. During the lunch and recess times students are given opportunities to socialize with friends and to meet new people.



Recreation and Arts Program

In an effort to achieve a healthy balance between the academic and social aspects of the summer program, recreation and arts have been woven into the daily student activities. A recreation program including indoor and outdoor activities is provided daily. A creative arts program also is offered during this recreation time. Special events such as a carnival and Team Olympics highlight the program.





SCHEDULE OF THE SUMMER PROGRAM June 30-July 25, 2014

*Students in grade 6 may choose courses for either grade levels 4-6 or 6-8
without being confined to either age group.*

Grades 2-3

PERIOD 1

9:15 - 10:10 a.m.

- Computer Animation: Programming to Develop Digital Creations
- Our Dynamic Earth*

PERIOD 2

10:20 - 11:15 a.m.

- Computer Animation: Programming to Develop Digital Creations
- Our Dynamic Earth*

11:20 a.m. - 12:15 p.m.

Lunch & Outdoor Recess

PERIOD 3

12:20 - 1:15 p.m.

- Archaeology: What is Past is Present
- Math & Architecture: Why Do Buildings Stand Up?

PERIOD 4

1:25 - 2:20 p.m.

- Archaeology: What is Past is Present
- Math & Architecture: Why Do Buildings Stand Up?

2:30 - 3:30 p.m. **Recreation**

Grades 4-6

PERIOD 1

9:15 - 10:10 a.m.

- Superheroes in Literature and Comic Book Design
- Microbiology I: The Study of Single Cell Organisms*
- Structural Engineering*

PERIOD 2

10:20 - 11:15 a.m.

- Computer Robotics: Creating Physical and Virtual Robots*
- Genetics and Inheritance*
- Puzzles, Paradoxes and Prestidigitations*

11:20 a.m. - 12:15 p.m.

Lunch & Outdoor Recess

PERIOD 3

12:20 - 1:15 p.m.

- Fun with Mathematical Challenges
- Rocketry and Space Science*
- Using Your Imagination to Create Picture Books

PERIOD 4

1:25 - 2:20 p.m.

- Business Headlines and the Impact on Economics
- Ichthyology: A Study of the Creatures of the Sea*
- Starry Night: 3D Astronomy*

2:30 - 3:30 p.m. **Recreation**

Grades 6-8

PERIOD 1

9:15 - 10:10 a.m.

- Advanced Computer Robotics: Robots to the Rescue*
- Mission to Mars: A Virtual Reality, Hands-on Experience*

PERIOD 2

10:20 - 11:15 a.m.

- Superheroes in Literature and Advanced Comic Book Design
- The Cosmos: 3D Astronomy*

11:20 a.m. - 12:15 p.m.

Lunch & Outdoor Recess

PERIOD 3

12:20 - 1:15 p.m.

- Advanced Business Headlines and the Impact on Economics
- Microbiology II: Advanced Study of Organisms*

PERIOD 4

1:25 - 2:20 p.m.

- Advanced Math Brain Games
- Writing Children's Books for Publication

2:30 - 3:30 p.m. **Recreation**

*** A lab fee of \$30 per science class will be charged for any student taking science classes.**

****Courses subject to change**



SUMMER 2014 COURSE DESCRIPTIONS

Grades 2-3

Students in grades 2 and 3 will be assigned to the following four courses during each day:

ARCHAEOLOGY: WHAT IS PAST IS PRESENT

An archaeologist is a combination of detective and historian. Students will examine artifacts discovered on campus and learn about the relationship between the artifact and the culture that produced it. Students will learn about earlier and ancient cultures as well. As part of the course, students will participate in a simulated surface dig.

COMPUTER ANIMATION: PROGRAMMING TO DEVELOP DIGITAL CREATIONS

Children will learn to master four iPad applications: LEGO Movie Maker, MyStopAction, Explain Everything and Move the Turtle. Children will become familiar with all four programs, gaining technological finesse with an iPad. They will apply their knowledge of the skills they learn by making projects in class. They will learn to think creatively, problem solve, reach solutions to challenges, synthesize new technological skills and demonstrate their learning and thinking using computer animation. Finally, students will present, assess and evaluate their projects.

MATHEMATICS AND ARCHITECTURE: WHY DO BUILDINGS STAND UP?

How are ideas in mathematics related to architecture? The design of most major architectural projects is dependent upon laws and principles of mathematics. This course will explore how the combination of architecture, numbers, and shapes helps buildings to stand up. Students will have an opportunity to develop individual architectural projects.

OUR DYNAMIC EARTH

The emphasis of this curriculum is Earth Science. Children's curiosity will be stimulated as they learn about the most fundamental natural occurrences. Children will participate in activities that will expand their understanding of the earth, minerals, water, and weather.



SUMMER 2014 COURSE DESCRIPTIONS

Grades 4-6

Students in grades 4-6 choose four courses during each day. Students in grade 6 may choose courses for either grade levels 4-6 or 6-8 without being confined to either age group.

MATHEMATICS & COMPUTERS

COMPUTER ROBOTICS: CREATING PHYSICAL AND VIRTUAL ROBOTS

Robotics is expected to be an important field of the future. Through this hands-on, project-based class, students will create physical and virtual robots, as well as take home a physical robot built in the course.

FUN WITH MATHEMATICAL CHALLENGES

Students will participate in activities and online competitions that will help them develop and enhance their problem solving abilities. Problems will include web based sites that challenge students with unique problems involving strategies and techniques learned in class. Students will learn to analyze and solve non-routine mathematical problems, identify key words, and use diagrams and tables. They will also identify patterns and develop estimation and deductive reasoning skills. Daily activities include short presentations on key techniques followed by small group and individual practice sets designed to challenge students and improve critical thinking skills. Computer generated questions are utilized in this course. New problems are selected for the summer semester. Special attention will be provided to meet the needs, interests, experience and ability of each student.

BUSINESS HEADLINES AND THE IMPACT ON ECONOMICS

Students will explore current business headlines and students will look at the function of businesses around the world in order to understand how current events impact business and society. Students will research current business topics, apply their knowledge to forecasting future issues, and create an exciting news show utilizing technology software. *Resources utilized will be appropriate for 4-6 grade students.*

SCIENCE

GENETICS & INHERITANCE

This course will take students on a journey deep inside the cell to study the structures that control its makeup. Students will study the discoveries of Gregor Mendel, James Watson, and Francis Crick. Topics to be covered are basic Mendelism, inherited traits, structure of DNA, RNA, transcription, translation, genetic disease, mutation and evolution.

ICHTHYOLOGY: A STUDY OF THE CREATURES OF THE SEA

Students in this course will study fish from the very simple to the extremely complex. They will start out by learning the various stages in the life cycle of fish, then proceed to the examination of the various anatomical and physiological differences in the types of fish, such as bony and cartilaginous. Students will also compare freshwater and salt water fish to see the structural differences between them.



MICROBIOLOGY I: THE STUDY OF SINGLE CELL ORGANISMS

In this course, students will delve into the world of microscopy to study the biology of microscopic organisms. They will be introduced to basic techniques used to study and explore the lives and interrelationships of these micro-organisms. Extensive use of the university's microscopes will help students in their explorations.

PUZZLES, PARADOXES AND PRESTIDIGITATION

Seeing is believing, or is it? What is the possibility of impossibility? Using a fascinating collection of optical illusions, magic tricks, puzzles and discrepant events, students will be challenged to participate with, evaluate and understand a variety of different illusions and "magic tricks" that will incorporate many different art forms and media. This course will provide a fun-filled opportunity to draw, computer generate, build and 3D PRINT puzzles and illusions as we delve into this fascinating world of art, science and technology. Background material on the form and function of the human eye, light theory and color theory will be provided to permit a better understanding of relevant scientific concepts. This will be a hands-on, minds-on course that will provide participants with a better understanding of and familiarity with magic, illusions, and the underlying science.

ROCKETRY & SPACE SCIENCE

From hot air balloons to the outer edge of space, we will investigate the pathway that led us from our dreams of flight to our first lunar steps. Students will design, build, and launch lighter-than-air vessels. The principles of aerodynamics and rocketry will be explored, as they design, build, and launch their own rockets. Safety procedures will be stressed throughout the program.

STARRY NIGHT: 3D ASTRONOMY

This new and exciting hands-on course will study the solar system and stars in three dimensions. Topics to be studied include gravity, star alignments, the seasons, the Big Bang Theory, and our ever expanding universe. The class will utilize Starry Night software to aid students in their explorations.

STRUCTURAL ENGINEERING

This course will examine the basic concepts of engineered structures. It will examine traction, equilibrium, tension, stress, strain, and the strength of materials, as students learn how to build. In the course, students will build bridges, towers and cranes, testing them for integrity in the lab.

HUMANITIES

SUPERHEROES IN LITERATURE AND COMIC BOOK DESIGN

Discover the attributes of famous superheroes in literature and analyze those traits in popular, classic comic books. Students will create their own superhero and engage in the writing process, design, layout, and production of their own original comic strip or comic book.

USING YOUR IMAGINATION TO CREATE PICTURE BOOKS

Picture books can be an exciting way to develop character and themes which influences our perspective on the human condition. Learn how to create inventive heroes and story lines which captivate our imagination and thinking. In the process, we will study accomplished authors. Each student will create his/her own picture book.



GRADES 6-8 MATHEMATICS & COMPUTERS

ADVANCED MATH BRAIN GAMES

This course offers its students the opportunity to thoroughly explore geometry. Students will utilize the Internet, as well as other computer applications, to investigate the wonders of polygons and their relationship with the world around us. This course will include studies of tessellations, congruence, similarity, the polyhedra, measurement, and a myriad of other geometric topics. Students will leave this course with a new respect for, and enjoyment of, geometry.

ADVANCED COMPUTER ROBOTICS: ROBOTS TO THE RESCUE

This course seeks to awaken students' imagination as they explore the world of robotics. Included is research, hands on Lego Mindstorms projects, and software constructionist programs. Students are encouraged to dig down to figure out the thinking behind the engineering. The building of a physical robot to take home is also part of the course.

ADVANCED BUSINESS HEADLINES AND THE IMPACT ON ECONOMICS

Students will explore current business headlines and students will look at the function of businesses around the world in order to understand how current events impact business and society. Students will research current business topics, apply their knowledge to forecasting future issues, and create an exciting news show utilizing technology software. *Resources utilized will be appropriate for 6-8 grade students.*

SCIENCE

MICROBIOLOGY II: ADVANCED STUDY OF ORGANISMS

Students in this course will continue their study of microscopic organisms. They will learn about techniques that are being used in modern research to help find cures for diseases caused by viruses and bacteria. Students will learn how and why antibiotics affect micro-organisms. Extensive use of the university's microscopes will help students in their explorations.

MISSION TO MARS: A VIRTUAL REALITY HANDS-ON EXPERIENCE

Are you ready to go to MARS? Pack your bags, grab your Mission Control Passports and journey into SPACE as part of a NASA Mission Control Team Simulation. Participants will take on the roles of scientists and engineers as they send a spacecraft to map the surface of Mars in preparation for a manned landing. NASA and/or private individuals hope to land astronauts on Mars within the next two decades. They have even established an optimal time frame for this event, in the early 2030's when the very different orbits of the two planets will bring them closest to each other. Our virtual journey will continue with a field trip to the surface of Mars as participants direct the Mars Rover to explore and interact with the surface of the Red Planet. Hands-on experiments with gyroscopes, homemade spectrographic analyzers and other gadgets and toys will be supplemented with discussions on Kepler's Laws, the Drake Equation and an exploration of real time space hazards that the team will have to overcome in order to ensure the success of their mission.



THE COSMOS: 3D ASTRONOMY

This innovative, advanced astronomy course will explore our dynamic solar system and the stars in three dimensions. Gravity and alignment of the stars during different seasons, the Big Bang Theory and our expanding universe will be explained using Starry Night Software.

HUMANITIES

SUPERHEROES IN LITERATURE AND ADVANCED COMIC BOOK DESIGN

Discover the attributes of famous superheroes in literature and analyze those traits in popular, classic comic books. Students will create their own superhero and engage in the writing process, design, layout and production of their own original comic strip or comic book.

WRITING CHILDREN'S BOOKS FOR PUBLICATION

We are never too old for children's books. They appeal to children and adults of all ages. Children's books are a unique and creative venue for exploring plot, conflicts and life themes. Students will be immersed in the craft of children's book writing by first studying renowned children's book authors. Students will then engage in the writing process of brainstorming, writing, revising, editing and ultimately publishing their own children's books.