



2011 SUMMER SCIENCE CAMPS

Dolan DNA Learning Center, Cold Spring Harbor, NY
DNA Learning Center *West*, Lake Success, NY



Registration Open!

<http://summercamps.dnalc.org/>

The Dolan DNA Learning Center (DNALC) of Cold Spring Harbor Laboratory is the world's first science center devoted entirely to genetics education. The DNALC "invented" DNA camps in 1985, and since then over 12,000 students have participated.

In summer 2011, we are offering fun and challenging camps at the DNALC's two Long Island centers in **Cold Spring Harbor** and **Lake Success** for science enthusiasts entering 6th–12th grade. Guided by experienced instructors, students will use sophisticated laboratory and computer equipment to perform experiments several grade levels ahead of their peers.



Fun with DNA (entering grades 6 or 7) immerses students in activities and experiments designed to build a strong foundation in biology. Through model-making, microscope observations, and laboratories – including DNA extraction and genetic engineering – participants build an understanding of cell biology, microbiology, genetics, and biotechnology.

World of Enzymes (entering grade 8, or *Fun with DNA* alumni entering grade 7) builds on concepts learned in *Fun with DNA*. Students explore the use of enzymes in the food and health industries, and are introduced to sophisticated DNA analysis by gel electrophoresis and polymerase chain reaction (PCR).

Forensic Detectives (entering grade 9 or *World of Enzymes* alumni entering grade 8) is a follow up to *World of Enzymes* and an introduction to forensic science for CSI enthusiasts. Although DNA is a useful crime-solving tool, it certainly isn't the only weapon detectives have in their crime-fighting arsenals! Through a series of labs and activities, participants will experience forensics in a more realistic fashion than portayed on prime time TV.

Green Genes (entering grade 9, or *World of Enzymes* alumni entering grade 8) introduces students to recombinant-DNA techniques used to manufacture human insulin and other biotech products. Participants use restriction enzymes and transformation to clone a jellyfish gene into bacteria, then purify the resulting green fluorescent protein (GFP) from the transformants.

Genetic Horizons (*Green Genes* alumni) investigates how genetic research is changing our lives. Students use DNA fingerprinting to identify suspects at a mock crime scene, use PCR to detect genetically modified foods, and use bioinformatics to analyze and compare DNA sequences.

DNA Science (entering grades 10–12) provides extensive lab experience with the basic techniques of recombinant DNA, including DNA restriction and ligation, bacterial transformation, and plasmid isolation. Participants perform the entire lab sequence from the popular *DNA Science* text.

Silencing Genomes (*DNA Science* alumni entering grades 10-12) explores the power of RNA interference (RNAi), a Nobel-prize winning discovery that has revolutionized how genes are studied. Working with the small round worm *C. elegans*, participants examine mutants, inactivate genes by RNAi, and examine the RNAi mechanism.

Human Genomics (*DNA Science* alumni entering grades 11 or 12) integrates biochemical and computer methods used to analyze the genetic complement (genome) of humans. Participants identify several types of DNA variations in their own DNA and use these as starting points to explore theories of human origins and applications in personalized medicine.

Plant Genomics (*DNA Science* alumni entering grades 11 or 12) integrates biochemical and computer methods for analyzing plant genes. Participants examine food products for signs of genetic modification, detect "jumping genes" discovered by CSHL Nobelist Barbara McClintock, and have the unique opportunity to assist scientists with the analysis of newly discovered genes in rice.

For information go to www.dnalc.org or call the DNALC at 516-367-5170