



From left, Newtown High School students Sara Davis, Maggie Boushell, Filipe Moura, and Robert Grauer recently participated in the school's first-ever science research program, facilitated by biology teacher Frank LaBanca. Sara will serve as a delegate later this month at the Junior Science and Humanities' Symposium nationals in Baltimore, Md.

—Bee Photo, Lytwyn

Students Participate In Newtown High's First-Ever Science Research Program

By LARISSA LYTWYN

Biology teacher Frank LaBanca has brought his passion for science to Newtown High School through a cutting-edge research program he first developed as an instructor at Stamford High School around 1998.

"I became interested in students having the opportunity to develop their own research projects to present at the Connecticut Science Fair and Junior Science and Humanities Symposium (JSHS)," Mr LaBanca, a former technician at a bacterial genetics lab, explained.

Bringing the internships and independent research projects common to college experiences to the high school level, he said, better prepared students interested in science for the academic and professional challenges that lay ahead.

He said he valued his own experience segueing from a University of Connecticut internship at a bacterial genetics research lab into an early part of his career.

When he moved to the Newtown area a few years ago, he found the hour-plus commute to Stamford increasingly taxing and decided to apply for a position as a teacher at Newtown High School.

"I discussed the research program in my job interview," he said, smiling.

Mr LaBanca said he found the Newtown High School faculty and administration highly supportive of his endeavor.

Juniors Sara Davis, Maggie Boushell, Robert Grauer, and senior Filipe Moura applied to participate in Mr LaBanca's inaugural research program at Newtown High School.

Sara's presentation, "Improved Efficiency of Oxidation of Alco-

hols to Ketones Using Microwave Radiation," has an industrial application to nylon production. "I've had an interest in organic chemistry since I participated last summer in Mentor Connection, a program through the University of Connecticut," she said. Organic chemistry, she continued, involved with the composition of carbon compounds, can be applied to a wide range of fields, from medicine to the production of materials such as nylon.

Sara's project is a two-year study; next year she plans to replicate the experiment using different alcohols.

She placed sixth, garnering an honorable mention, at the JSHS. One of the top five winners is unable to attend the national honor ceremony taking place later this month in Baltimore, Md., so Sara will get the chance to serve as a delegate.

She plans to major in chemistry in college.

Maggie Boushell's project, "Expression of Cytochrome P450 NADPH Reductase Complex in Differentiated Tissue as an Indicator of Biological Stress" can be used to measure the health of organisms, including humans. "I used tissue and lung samples to see if there was a presence of the Cytochrome P450," she said.

Maggie said the project furthered her interest in science, particularly biology. Like Sara's project, Maggie's is a two-year endeavor. "This year I pretty much refined my technique," she said. "Next year I will be testing for the presence of Cytochrome in different marsh environments." She plans to enter project in both the Siemens-Westinghouse Science Math and Technology Competition and the

Intel Science Talent Search.

Robert Grauer found how chitin, derived from lobster shell, is a natural filter of toxins. His project, "Facts of Chitin and Chitosan as Bio-Filtration Material," used both the chitin and a synthetic version, chitosan. The chitin was actually more effective in toxic filtration.

He plans to apply his findings to marsh samples next year in the second part of his two-year project. "The project interested me because of my interest in marine biology," he said, adding that he would like to major in marine biology in college.

Filipe Moura, a senior, created a project titled "Using Macro and Molecular Indices to Determine the Health of Long Island Sound Mussels." He wanted to find out if there was a correlation between the size and relative health of mussels and the amounts of protein and glycogen they had.

Surprisingly, there was no direct correlation.

"However, higher amounts of protein and glycogen are indicative of a healthier organism," he said, "among other factors."

Mussels, Mr LaBanca added, were good organisms to use in experiments because they are "natural filters" to unsavory toxins and other contaminants.

When asked what they learned from their projects, Robert immediately declared, "Patience!"

"I also learned how science is surprising and unpredictable," said Felipe, who plans to major in biology and psychology.

"It's a great experience for the kids to have, especially at the high school level," said Mr LaBanca. "In the future, we are planning to develop the program into an elective course."