

# TEACHER-SCHOLAR

## A REVOLUTIONARY PARTNERSHIP ADVANCES SCIENCE EDUCATION IN ISRAELI SCHOOLS

The performance of Israeli schoolchildren in international assessment tests in science and mathematics has been slowly declining since the early 1970s, with the sharpest drop in scores occurring since 2000. Additionally, the education system is facing a critical teacher shortage as many of the current science teachers, immigrants from the Former Soviet Union, will soon be retiring en masse, says Hebrew University Physics Prof. Eran Sharon. As a result, the Central Bureau of Statistics estimates that the Israeli school system will be short hundreds of science teachers in the coming years, further impairing the teaching of science.

In response to this upcoming crisis, the Hebrew University launched in 2013, in a joint partnership with the Jerusalem Municipality, the Teacher-Scholar Program, an out-of-the-box plan that benefits both PhD graduates with science degrees as well as high school students in the city of Jerusalem. Many Hebrew University graduates with appropriate science backgrounds for teaching are drawn to the high salaries of the private hi-tech sector in comparison to the much lower ones in education, says Teacher-Scholar Co-Founder, Sharon. This is compounded by the lack of postdoctoral and tenure-track positions available in Israel. The Teacher-Scholar program,

however, aims to take advantage of the vast teaching experience these graduates have amassed during the course of their studies – often six or more years of teaching including lab training and mentoring of younger students. The program enables PhD graduates in the sciences to teach part-time in Jerusalem's high school, while benefiting their professional career by continuing to perform top research at the University. The model is injecting the education system with a cadre of new, energetic, and highly qualified science teachers who are not only continually updating their own science knowledge, but also providing their pupils with access to Hebrew University's cutting-edge



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laboratories. "In addition to teaching high-level science and research approaches, the teachers are actually bringing the University into the classrooms, and reciprocally, bringing the high schools into the University," says Physics Prof. Nathalie Balaban, the program's other Co-Founder.

Select PhD graduates chosen for this program earn a teaching certificate at the Hebrew University's School of Education and complete the necessary practicum hours. Upon graduation, the newly qualified teachers work in half-time teaching positions in Jerusalem high schools, while they continue as research fellows at the University producing groundbreaking research and participating in scientific conferences.

The new teachers are continuously mentored by a master teacher in their field for the first three years of teaching. The Teacher-Scholars initiate enrichment activities for their students while helping to cultivate a relationship between their school and the University. To avoid the common phenomenon of teacher drop-out after the initial years, the University commits to maintain each teacher-scholar position for a minimum of ten years, with an option for extension.

This win-win collaboration with the city of Jerusalem is improving the quality of teaching in local schools while helping the University fill essential non-tenured research positions. The University aims to grow the Teacher-Scholar program to become a model for a potential national program. Currently, the program is supported by the Hebrew University, the Faculty of Science, the Jerusalem Municipality and the Trump Foundation.

"Eventually we would like to expand researchers' involvement in high schools and show that researchers care about how their research is understood by kids all over the world," says Balaban.

# UNIVERSITY STUDENTS FOR A DAY

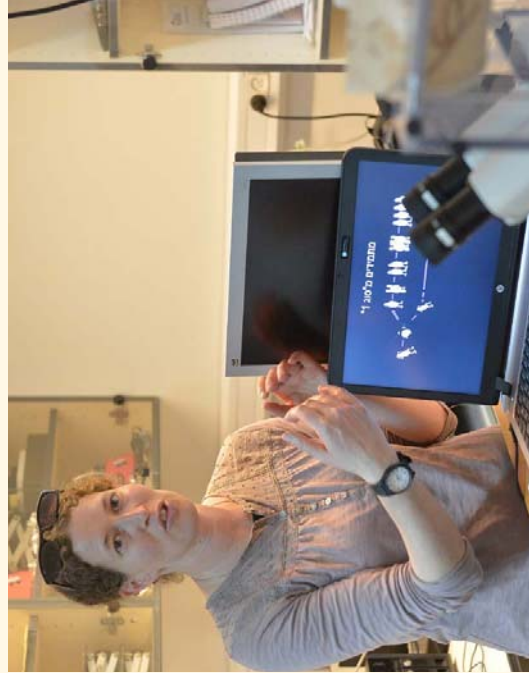
Dr. Orit Gefen grew up in Jerusalem and received her doctorate in Physics in 2010 from the Hebrew University of Jerusalem. In 2006 she completed a teaching certificate, and has since been teaching Physics in a girls' school in the Ramot neighborhood of Jerusalem. Her example was one of the inspirations for the creation of the Teacher-Scholar program. As one of the original Teacher-Scholars, she is also working as a research fellow in a biophysics lab.

Gefen is the brainchild behind the exceptional day that brought 100 high school students from around the city to visit HU's Edmond J. Safra Campus. The students came from diverse neighborhoods all over Jerusalem, but what they had in common was that their science teachers are all a part of the Teacher-Scholar program. The day at Hebrew University offered them insight into the research of their

teachers, and let them experience what it is like to learn on a campus in state-of-the-art labs. Students participated in hands on experiments in 3D Printing, Nanotechnology, and Physics.

"It was so inspiring to watch my students explore the University—entering the labs, engaging, showing interest and enthusiasm. The initiative of the researchers to host the high school students in their labs shows that academia wants a connection with high schools and is willing to invest in it," says Gefen.

The students were equally impressed with Gefen's lab. "We are exposed to the entire world of science from different perspectives, not only through study material, but also through observing experiments and meeting researchers," explains Yarden. Dr. Gefen's student from Ohr Torah Stone – Midrashta. "There is simply no comparison."



Dr. Orit Gefen shows off her lab to students