Facilities that Inspire Learning

Building a New Home for Marine and Natural Science Researchers at the University of Haifa

May 2015
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Marine and Natural Science Researchers

From advances in cancer and brain research, to discovering alternative energy sources, fighting world hunger through genetic wheat engineering and safeguarding the precious resources of the Mediterranean Sea, University of Haifa researchers are tackling pressing scientific questions to protect our health and safeguard the environment.

Home to the youngest Faculty of Natural Sciences in Israel, in a short period of time the University's innovative laboratories have gained a reputation for world-class research, especially in areas where we maintain a competitive advantage such as marine research and brain research. With faculty members and a student body that most accurately mirrors Israeli society, our vision is to cultivate academic excellence in research and teaching within an environment of tolerance, openness and multiculturalism.

While the rapid expansion of the Faculty of Natural Sciences has contributed to a vibrant academic spirit on campus, it has not come without costs. The original facilities designed for marine and natural sciences research at the University are now critically overcrowded and require a substantial upgrade.

"A new marine and natural sciences building is really the single most important facility needed on our campus. It is important for potential donors to realize that they're giving money to more than a building. They are making an investment in our product – and our product is our students," explains Mr. Amos Shapira, University of Haifa President.
Research at the Forefront of Science

Mediterranean Sea Research

Nearly a decade ago, the University's leadership recognized the importance of the Mediterranean Sea and had the foresight to establish the Leon H. Charney School of Marine Sciences. From its inception, the School set for itself an ambitious mission of harnessing the power of the sea for the betterment of humanity and serving as a catalyst for regional, scientific cooperation.

Today, under the leadership of Israel prize recipient Prof. Zvi Ben-Avraham, the School has grown to include four inter-disciplinary graduate departments – Marine Biology, Marine GeoSciences, Maritime Civilizations, and Marine Technologies – a graduate program in Maritime Law and Marine Natural Resources Law and a research center in Maritime Strategy and National Security.

The strategic decision to launch the Charney School became profoundly important when oil and natural gas reserves were discovered off the coast of Haifa. These discoveries catapulted marine sciences into the international spotlight and onto Israel's national agenda. In response to these developments, and for the first time in Israel's history, the University of Haifa was chosen by the government to lead a consortium of Israel's leading research universities to address an unprecedented array of scientific, technological, economic, security, and environmental challenges and opportunities. The recently launched Mediterranean Sea Research Center of Israel – the only one of its kind in the Middle East – serves as a national and regional academic hub for marine sciences.

In accepting upon itself the mantle of leading the national initiative, the University of Haifa also took upon itself a range of scientific, academic and financial responsibilities and commitments. We feel privileged to have been given this important mandate and are keenly aware that laying strong scientific and academic foundations are crucial for future success.

The University of Haifa leads a consortium of Israel's leading research universities and institutes.
Neurobiology: Brain and Behavior Research

The importance of brain research cannot be overstated. More than 1,000 disorders of the brain and nervous system result in more hospitalizations and lost productivity than any other disease group, including heart disease and cancer.

At the University of Haifa, neuroscience research is dedicated to developing a better understanding of the brain and the interface between neural substrates, diseases and behaviors. Spanning diverse neuroscience disciplines, our research groups focus on particular neurodegenerative diseases and psychiatric disorders and seek to better understand their underlying mechanisms – from molecular and cellular mechanisms to the study of whole neuronal systems.

Our research is inherently interdisciplinary and global in scope. The University of Haifa's ten neuroscience laboratories are headed by world-class researchers working in collaboration with colleagues from across the globe. These faculty members bring expertise in molecular and cellular biology, genetic manipulations, microscopy, in-vitro and in-vivo electrophysiology and human functional imaging. These different perspectives provide our student with a fuller, more accurate picture of how the nervous system is organized and how it functions.

The goal of the program is to train excellent neuroscientists who will develop solutions for the most debilitating brain disorders, such as Alzheimer’s and Parkinson’s diseases, autism, depression, Post-Traumatic Stress Disorder, dyslexia and more.
The Need

The University's current research facilities no longer meet the needs of our growing faculty and enthusiastic student body. "We want to provide our students with the kinds of research environments that they would see when they go to work, and our environment has fallen behind," states Prof. Edi Barkai, Dean of the Faculty of Natural Sciences.

Overcrowding in the laboratories has reached critical levels. Frequently, 6 researchers are required to share a space that would normally suit 3 scientists. Moreover, extremely expensive equipment containing delicate research materials are regularly stored in the hallways for lack of a better solution.

Over the next five years, the situation will become even more acute as the Faculty plans to recruit additional faculty members, many of whom will join the University under the umbrella of the Returning Scientists Program – an important national initiative designed to reverse the "brain drain" and "bring home" talented Israeli researchers working abroad.
Moreover, the ongoing space shortage at the Charney School of Marine Sciences has the potential to hinder the national consortium's marine research agenda. The School's five year plan lays out targets to attract new faculty members, expand its academic offerings, build new laboratories and double its student population to 400 students. The ultimate goal of this expansion is to position Israel as a scientific hub for marine research in the eastern Mediterranean region.

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<th>2014</th>
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A New Home for Marine and Natural Science Researchers

To accommodate the new faculty, young scientists and students, the University plans to add an additional two floors to expand the Multi-Purpose Building. The existing building is spread over 10,000 square meters and includes three floors.

The two floors will provide an addition of 4,800 square meters and will house an additional 33 laboratories and 10-12 conference rooms and classrooms. Specialized wet and dry laboratories for marine science research are often expensive to build and costly to maintain. An optimal work environment will enable our scientists to secure competitive research funding and assist them in further developing and expanding their scientific work.
Meet the Next Generation of Marine Scientists

A number of our promising young scientists require advanced facilities to conduct their exciting research. They are awaiting laboratories equipped with the necessary scientific infrastructure that will enable them to advance their research and mentor the next generation of doctoral students.

Making Aliyah & Making Israel Greener

Maura Schonwald was born and raised in Oklahoma, a landlocked state with little cultural variety. For Maura, traveling to distant lands to pursue her academic goals was always in her plans. "After completing my BA in archaeology in marine resources at Indiana University, I traveled to Mexico to learn about marine ecology." Maura spent two years conducting research on coral reef conservation while living on an island with no running water and only as much electricity as the sun provided.

With the help of her sister who lives in Israel, Maura was accepted to the graduate program at the Department of Maritime Civilizations. "Ever since I visited Israel in 2004, I have always had a great appreciation for the country as well as its special culture," recalls Maura. "I have now been here for more than two years, made aliyah, and have a full-time job. I am also working towards finishing my MA thesis on underwater fauna and look forward to beginning my PhD degree in the near future."

Eco-Friendly Fish Farming of the Future

Dafna Israel recently returned to Israel after nine years abroad, where she earned her BSc in Canada and MSc in Iceland. "I chose to pursue my doctoral studies at the University of Haifa because of its special multi-disciplinary approach, which is critical to my research," she explained.

Dafna is currently conducting research on Integrated Multi Trophic Aquaculture (IMTA), with a focus on discovering eco-friendly food sources to support fish farms in the Eastern Mediterranean Basin.

"The field of aquaculture will play an important role in feeding the world's growing population. Our research will make a contribution to reducing world hunger and could be a potential area of economic growth for the State of Israel."
Uncovering the Mysteries of Ancient Civilizations

Four years ago, **Ehud Arkin** left a career in high-tech management to pursue an MA at the Department of Maritime Civilizations specializing in maritime archaeology. "I was looking for a career that was more fulfilling and combined my passion for the underwater environment with intellectually stimulating research that gives us a window into understanding ancient civilizations."

Bodies of water, fresh and saline, have been important sources of food for people throughout history. It should be no surprise then that ancient villages were located at the water's edge. Rising water levels over the past 2,000 years have submerged a great deal of human activity.

Today, Ehud is taking part in underwater excavations at the Dor Roman and Byzantine ports, and offering new insights into the coastal societies in the Levant. "Our research is contributing to our understanding of the economy, culture, and politics of the ancient world."

Marine Medical Research

**Dr. Daniel Sher** returned to the Department of Marine Biology after completing his post-doctoral fellow at MIT. Dr. Sher has won numerous awards, including recognition as a Fulbright Scholar. Born in the U.S., Dr. Sher came with his family to Israel as a child and earned his PhD at the Hebrew University. As a post-doc in Boston, Sher built a significant international reputation in the field of marine biology. He chose to return to Israel, and specifically to the University of Haifa, to pursue research to better understand how marine organisms use advanced chemistry in order to survive in a hostile environment.

“The marine environment presents an ideal stage on which chemical interactions can be played out,” Dr. Sher explains. “Studying these interactions often brings with it the discovery of novel chemical compounds which have biotechnological, pharmacological or medical uses. Antibiotics, for example, are often synthesized by microorganisms in order to fight other microbes and protect themselves against pathogens. For example, we believe that jellyfish venom hold tremendous promise for medical research.”
Request for Support

The Faculty of Natural Sciences and the Charney School of Marine Sciences are playing a critical role in improving the wellbeing of Israeli society and that of our neighboring countries. Behind the scenes in our laboratories, life-changing research is ongoing, and this research is advancing the frontiers of science and transforming knowledge that improves our quality of life.

To provide optimal conditions for the current and next generation of researchers, the University is planning to add two floors to the existing Multi-Purpose Building. The two floors will provide an additional 30 laboratories and 10 seminars and classrooms. This professional work environment will enable our scientists to secure research funding and assist them in further developing and expanding their scientific work.

▶ A generous gift of $30 million will enable the University of Haifa to dedicate the Marine and Natural Sciences Building in your name.

This generous contribution will enable the University to complete the building addition of two floors, provided much needed laboratories and scientific infrastructure for the current and future generation of scientists who are conducting vital research.

Donor Recognition

Your generous donation will be recognized in the following manner:

- The building will be named for the donor.
- A plaque recognizing the donor will be placed in a prominent location of the newly renovated building.
- A festive dedication ceremony will be held in honor of the donor.
About the University of Haifa

As the largest research university in the country’s northern region and academic home to a community of students that most accurately mirrors Israeli society, the University of Haifa is of unique strategic importance to the State of Israel. It enrolls the largest number of military and security personnel, who study alongside civilians from all walks of life - Haredi and secular Jews, new immigrants, Arabs, and Druze.

The University’s mission is to cultivate academic excellence, create a shared Israeli experience, and promote democratic values in an environment of tolerance and multiculturalism. It is such an environment that contributes to outstanding research and a community of exceptional, creative, and productive alumni. We believe that fostering outstanding research while strengthening Israel’s northern region and promoting an environment of multiculturalism is of strategic importance for the continued existence and prosperity of the State of Israel.

The University of Haifa stands atop Mount Carmel, where Haifa’s southern boundary verges on the Carmel National Park. Over 18,000 students study here for undergraduate, graduate, and doctoral degrees. The University of Haifa is fully committed to academic excellence, which is expressed in its many and diverse interdisciplinary and international programs and collaborations with academic institutions around the world. The University of Haifa has gained an international reputation in many research areas, and is Israel’s leading university in education, the humanities, social sciences, and marine research.

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