



Bar-Ilan University

Canadian Academic
Mission to Israel



Program Information and Agenda

August 28, 2022



Bar-Ilan
University
אוניברסיטת בר-אילן



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Agenda

| Location: Building 206

17:30-18:00

Welcome and Introductions

Prof. Arie Zaban, BIU President

18:00-18:45

Presentations

18:00-18:15

Project 949: Impacting Medicine

Prof. Shulamit Michaeli, BIU Vice-President for Research

18:15-18:30

The Diabetes SPHERE: A Unique Initiative

Prof. Karl Skorecki, Dean, Azrieli Faculty of Medicine

18:30-18:45

Sustainable Energy: The Key to Our Future

Prof. Doron Aurbach, Head, Center for Energy and Sustainability

18:45-19:00

University Partnerships

Signing of Memorandum of Understanding with Concordia University

Networking and Buffet Dinner

Optional Tour of Laboratories

19:00-20:00

If you would like to join us for a visit to one of our labs, please provide your details and the name of the lab you would like to visit to one of the International School's student representatives. These visits will take place between 19:30 and 20:00.

Energy Lab: Prof. David Zitoun, Head, Department of Chemistry

Nano Electronics: Prof. Beena Kalisky, Department of Physics

Hydro Energy Lab: Prof. Lior Elbaz, Department of Chemistry

Neuro Science: Prof. Lior Appelbaum, Department of Life Sciences



President's Message

Dear Delegates

Welcome to Bar-Ilan University. We are pleased that you have chosen to visit our campus.

One of Bar-Ilan University's main goals is to impact our world through cutting-edge research and entrepreneurship with our local and global partners. This goal is exceedingly ambitious, and yet, with our incredible academic researchers and innovators, our strong leadership teams and administrative staff, and our international partnerships with top universities around the world, it is definitely within reach.

Bar-Ilan University believes in interdisciplinary collaborations and multidisciplinary academic studies and research. By breaking down barriers between faculties and departments, government and business in Israel and abroad, we are also opening the doors to new research possibilities.

We strive to be a hub for today's spirit of innovation as well as a diverse and inclusive academic center for all Israelis and international researchers and students who seek to make an impact in Israel and beyond.

Over the past three years, despite COVID, our student body has grown by 20 percent. We are now officially the fast-growing university in Israel. Our students come from every region, background, religion, and nationality—from Israel and abroad.

We recognize that our society is strengthened when motivated students become knowledgeable graduates who contribute to their communities—and we do everything in our power to support them on their journey to success.

We may not be able to predict the future, but at Bar-Ilan, we are doing our best to create it.

We hope your visit leaves you with the knowledge that Bar-Ilan is moving forward while growing, evolving, and innovating relentlessly, and we look forward to the possible collaborations and partnership opportunities that will result from today's gathering.

Prof. Arie Zaban
President, Bar-Ilan University
Chairman, Association of University Heads in Israel



Bar-Ilan University

Bar-Ilan University, founded in 1955, is one of Israel's leading institutions of higher education, uniquely combining innovative scientific and other research with academic excellence.

The university is consistently ranked in the top 2% of all universities globally in the Shanghai Academic Ranking of World Universities and, over the past year, has advanced to places 301-400 in the ranking, placing it at number five on the list of top Israeli universities.

Starting with 70 students and reaching approx. 20,000, the university's milestone achievements in the sciences, humanities, and all fields of human endeavor have made an indelible imprint on Israel and the world.

The university has nine faculties: Medicine, Engineering, Law, Life Sciences, Exact Sciences, Social Sciences, Education, Jewish Studies, and Humanities. These faculties are active partners in a variety of Israel's initiatives in all fields and industries.

Bar-Ilan University's academic standard

is among the highest in the country. The university prides itself on its award-winning, internationally recognized professors and researchers, all personally committed to providing their students with a first-rate education, cultivating independent thinking and personal growth.

A microcosm of Israeli society, our diverse student body includes both secular and religious, Jews and non-Jews, new immigrants and visiting international students, as well as a multi-faceted academic faculty and administrative staff. Their confluence represents a mosaic of the State of Israel, providing a unique atmosphere for open exchange of ideas and acceptance of others. Diversity is key on our campus, and tolerance and civility are our operating code.

A sense of community is hugely emphasized at Bar-Ilan University and students are surrounded by supportive staff who are there to provide guidance throughout each student's studies.

BIU's International School

Bar-Ilan University has welcomed students from all corners of the world since its inception. In May 2018, a dedicated International School was opened to focus on the ever-increasing number of students from abroad.

Currently, there are about 900 students from more than 45 countries studying through the International School, which offers a wide variety of degrees, research opportunities, programs, and short courses instructed entirely in English.

The International School aims to ensure that all students from abroad have an experience at Bar-Ilan University that is interesting, rewarding, entertaining, and fulfilling. The Student Services Center provides full support to students and serves as a one-stop, home-away-from-home space to care for students' needs.

On a wider scale, the International School is responsible for all academic and other visits to and from Bar-Ilan University, locally and internationally, as well as any collaborations and partnerships that arise between our university and other academic institutions, organizations, or businesses.

In addition, the International School has arranged and implemented many student and faculty exchange and study-abroad programs with more than 70 university partners in North America, Europe, the UK, and Asia.



Project 949

Impacting Medicine

Project “949” is a collaboration between Bar-Ilan University, Sheba Medical Center, and the Bezalel Academy of Art and Design.

A first-of-its-kind, scalable platform for venture building in medicine, the “949” project brings researchers together with clinicians from Israel’s largest hospital to create technologies that solve challenges faced by patients and physicians.

The “949” project is based on multidisciplinary scientific research. Physicians will contribute their clinical know-how and designers will advise how to visually present it, offering approaches that will make the technology offered more likely to be embraced.

Together, they will develop solutions to complex problems faced by the health and medical sectors locally and internationally, with special emphasis on leading trends. The aim is to connect, educate, and accompany the founders from the idea and development stages.

One of the main missions of the projects is validating product-market compatibility, making it more likely for raising investments. The focus will be on projects that deepen the connection between the clinical dimension, interdisciplinary research, and design-thinking to create innovative health initiatives from within the three institutions.

The project will be led by Prof. Shulamit Michaeli, BIU’s Vice President for Research, and co-managed by Ariel Sella, Managing Director of Bar-Ilan’s UnBox Ventures entrepreneurship center; Lital Shnaiderman, Chief Business Officer at ARC, the innovation arm of Sheba Medical Center; and Eyal Fried, Director of Bezalel’s 212 Innovation Lab.

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Prof. Shulamit Michaeli

BIU’s Vice President for Research

Appointed Vice President for Research in October 2017, Prof. Shulamit Michaeli previously served as Dean of the Mina and Everard Goodman Faculty of Life Sciences.

A microbiologist by training and current Myers Chair in Gene Expression and Infectious Disease, Prof. Michaeli studies the vicious parasites from the trypanosomatids family, which infects millions worldwide and causes African sleeping sickness, South American Chagas disease, and leishmaniasis, which is endemic in Israel. She studies the RNA biology of these special parasites.

Prof. Michaeli was the International Scholar of the Howard Hughes Medical Institute for 10 years and was the Head of the Life Sciences and Medicine section at the Israel Science Foundation for eight years. She was awarded the national Landau Prize in Microbiology and the Andre Lwoff Prize for the French Academy of Sciences.

Prof. Michaeli has pioneered the use of nanotechnology in fighting diseases through creating nano-drugs for parasitic infections and RNA delivery to fight cancer.

The Diabetes SPHERE

A Unique Initiative

The Russell Berrie Galilee Diabetes SPHERE aims to tackle diabetes and reduce healthcare disparities in Israel's north, while developing innovations in diabetes treatment and prevention that will have a global impact.

The SPHERE, led by BIU's Azrieli Faculty of Medicine in Safed (Tsfat), combines research and treatment, connecting academia and the community, to improve lifestyle while preventing and reducing morbidity and complications caused by diabetes.

SPHERE, which stands for the Social Precision-Medicine Health Equity Research Endeavor, integrates different disciplines,

which are often isolated from each other, by bringing together a broad spectrum of scholars; health care, social services, and industry professionals; religious community leaders; women's organizations; municipalities; NGOs; and Israel Diabetes Association centers.

The project is directed by Prof. Naim Shehadeh, Director, Institute of Diabetes, Endocrinology, and Metabolism at Rambam Health Care and President, Israel Diabetes Association, and Deputy Director, Dr. Sivan Spitzer, medical sociology research scientist, Faculty of Medicine, under the leadership of the Dean, Prof. Karl Skorecki.

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Prof. Karl Skorecki

Dean, BIU's Azrieli Faculty of Medicine

Prof. Karl Skorecki has been the Dean of the Azrieli Faculty of Medicine in Safed since 2018. Since moving to Israel from Canada in 1995, he has held senior positions including Director of the Nephrology Department and Director of Medical and Research Development at Rambam Medical Center; and Director of the Rappaport Research Institute in Haifa.

Prof. Skorecki's current major research interests are in human population and molecular genetics, having started with research studies tracing founding patrilineal and matrilineal lineages in Near East and Jewish populations. This has now extended to genome-wide studies including many global populations, with an emphasis on kidney disease population disparities.

Sustainable Energy The Key to Our Future

Bar-Ilan University recently established a new Center for Energy and Sustainability (BIU-CES), which demonstrates our commitment to addressing the most pressing environmental challenges in Israel and globally. In keeping with its name, the central activity of the Center relates to sustainable energy solutions.

The Center for Energy and Sustainability is a network of more than 50 Bar-Ilan University research groups across multiple disciplines, industry, government, and startup companies. These parties collaborate with the shared goal of pioneering comprehensive solutions in the fields of energy, ecology, smart cities, smart mobility, security, networks, regulation, sustainability, and the environment (including education for environmental protection), and assist in the development of Israel's national policy.

The Center is divided into seven clusters: energy, regulations, sustainability, networks, engineering, sustainability and ecology, and earth and environment, which focus on existing energy security challenges within their areas of expertise.

BIU scientists, members of BIU-CES, work in collaboration with prominent research groups in these fields throughout the world and are supported by large industries, who are confronting energy challenges, in Israel and abroad. The clusters work to advance real world solutions to meet the global environmental and energy challenges.

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Prof. Doron Aurbach

Head, BIU's Center for Energy and Sustainability

Prof. Doron Aurbach is a leading electrochemist and physical chemist, who provided key contributions to both the basic research behind the lithium-ion batteries—now standard issue in mobile phones and computers—and the development of commercial Li ion battery technology for electrochemical propulsion.

He has published more than 750 research papers in leading electrochemistry, materials science, and physical chemistry journals. These papers have been cited more than 89,000 times with h-index 145 (Google Scholar). The statistics from the Web of Science are h-index 128, more than 71,000 citations (July 2022).

Prof. Aurbach and his team work systematically on the R&D of a wide variety of power sources, electronically conducting polymers, and water desalination and purification processes. His work provides novel new technologies while advancing the basic science needed for development of reliable power sources.

Prof. Aurbach is also the leader of the Israel National Research Center for Electrochemical Propulsion (INREP), which includes 28 prominent research groups from seven Israeli academic institutions.



Impact-Driven Multidisciplinary Research

Bar-Ilan University's impact-driven approach to academic research has seen multidisciplinary teams of researchers partnering in hundreds of projects with Israeli and international researchers, industry, and public and government institutions and working together to address pressing challenges facing Israel and the world to improve quality of life.

Bar-Ilan University's research centers span a wide range of disciplines, including nanotechnology, physics, medicinal chemistry, life sciences, mathematics, brain research, engineering, computers, robotics, music, law, psychology, Jewish studies, biblical studies, archaeology, and more.

These are some of the many research and impact centers currently active at Bar-Ilan University.



Taking NanoTech to New Heights

Bar-Ilan's Institute of Nanotechnology and Advanced Materials (BINA) is a dynamic and growing scientific community with world-renowned researchers tasked with educating the next generation of nanoscience professionals while collaborating with academic and industrial experts on nano-based approaches to energy, magnetism, optics, cleantech, materials, quantum, robotics, bioconvergence, and biomedicine.

Established in 2007 and housed in the Leslie and Susan Gonda Nanotechnology Triplex, BINA boasts more than 70 cutting-edge laboratories as well as state-of-the-art "Scientific Service" facilities. BINA is highly sought after as an R&D partner. In addition to academic collaborations with some of the world's top research institutes, BINA currently partners with leading multi-national corporations.

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Understanding the Brain

The Leslie and Susan Gonda (Goldschmied) Multidisciplinary Brain Research Center brings together researchers in a variety of fields that are essential to understanding the brain including psychology, physics, linguistics, computing, and biology.

Researchers at the Gonda Center study the brain at all levels—from behavior and cognitive processing through detailed mechanisms of information processing in neural circuits to the analysis of vital molecules within nerve cells.

The Gonda Center also offers an international graduate program in neuroscience and was recently awarded a €3.7 million grant to establish an Erasmus Mundus Joint Master's program in brain and data science with five leading European universities.

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Jewish and Democratic Identity

The Menomadin Center for Jewish and Democratic Law develops legal and academic infrastructure to facilitate synergy between the components of Israeli identity and thus impact the public discourse.

The Center, which operates within the Faculty of Law at Bar-Ilan University, works to advance research, train change agents, and develop solutions to enrich and support the State of Israel's Jewish and democratic identity.

Programs include extensive educational and public activities, based on academic research and collaborations with different communities. The activities include public figures and a variety of researchers.

The Center's vision sees the potential in the Jewish and democratic identity of the State of Israel as a source for solidarity and prosperity.

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Creating Smart Cities

Bar-Ilan's Center for Smart Cities is an ecosystem for smart-city development. Researchers, entrepreneurs, municipalities, solution providers, and citizens work together to better understand the city's needs and find appropriate solutions.

Researchers come from the fields of business administration, computer science, engineering, chemistry, physics, law, education, and geography. Bar-Ilan University's campus acts as a living lab where researchers and solution providers can test their ideas and solutions and get feedback from the end users; i.e., citizens. The Center collaborates with seven local municipalities, social activists, and leaders in industry and technology.

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Digital Privacy and Protection

Through the combined efforts of researchers from the fields of computer science, engineering, mathematics, and brain research, Bar-Ilan's Center for Research in Applied Cryptography and Cyber Security is developing advanced methods of cybersecurity aimed at ensuring digital privacy and the protection of critical systems and networks from cyberattacks.

As a result, the Center, which was founded as part of a national program, sponsored in part by the Israel National Cyber Bureau in the Prime Minister's Office, works to improve the cybersecurity of the State of Israel and of its allies abroad. It also promotes collaboration with both industry and government on cutting-edge research questions.

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Simulation-Based Learning

HaLev, The Center for Simulation in Education in BIU's Faculty of Education, is a unique and first-of-its-kind body in the field of training educators and teachers. The Center trains educators to effectively manage conflicts and develop interpersonal communication skills such as building trust, listening and empathy, coping with resistance, mediation skills, crisis management, providing feedback, and conducting successful interviews.

The experience through simulations is conducted in a safe and secure learning environment with the participation of professional actors. Learning is based on clips of simulations and facilitates advancement and development both in the professional-disciplinary dimension and in the personal-emotional dimension.

HaLev is the premier training center of its kind in the world and has run over 2,800 workshops and trained over 27,000 participants from Israel and abroad. It includes a multidisciplinary, multicultural staff of educators, academics, facilitators, and actors.

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Unboxing BIU's Entrepreneurial Spirit

UnBox Ventures is an impact creation platform where research excellence meets purposeful entrepreneurship to solve complex challenges facing humanity, with special focus on healthcare.

UnBox creates, curates, and invests in research-based startups that aim to change the world for the better. With exclusive access to Bar-Ilan University's research community across 52 departments in nine faculties, UnBox Ventures transforms ideas into global impact with the support of startup-savvy mentors and the university's top leadership.

For inspired researchers and entrepreneurs, UnBox is a founding partner that delivers a proven methodology, expert coaching, ecosystem access, intellectual property clearance, and financial resources to get from zero to 100 faster than you can imagine.

Since its founding in 2019, UnBox has inspired more than 500 members of Bar-Ilan's research community and created a portfolio of 10 deep-tech startups, which have raised significant funding.

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A Window into the World of Data

Data is at the heart of contemporary research, from large-scale biological experiments to online social dynamics, opening a window to understand, predict, and influence our most pertinent systems.

The Bar-Ilan Data Science Institute (DSI) links researchers, who collect large-scale data, with others who develop tools for its analysis, providing a diverse platform for cross-disciplinary collaboration.

Representing research from a range of different areas—computer science, math, biology, brain science, law, and the humanities—DSI's aim is to join strengths and work as a team to understand the world through data.

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Who's Who at Bar-Ilan University



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Wine of Kings

Bar-Ilan University's Land of Israel Studies and Archaeology Department is on a search to find the "wine of kings" from the days of the First Temple—the wine that King David drank nearly 3000 years ago.

In the meantime, two strains of vines that go back to the days of the Second Temple have been found and various Israeli wineries have been making wine from these almost extinct species of indigenous grapes.

This historic and delicious wine is being served at the networking reception tonight. We hope you can taste the history in its flavor.





Bar-Ilan University
Impacting Tomorrow, Today

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