Dear Friends,

One of the privileges of being a university president is that I often have the opportunity to meet people who I might otherwise never come across. Such was the case with Arina Shestopolov Censor, a 17-year-old high school student in Beer-Sheva, who displayed ingenuity and maturity well beyond her years during a period of Grad missile attacks on the city this August.

Both the Rector Prof. Zvi HaCohen and I saw an evening news report about how she and her family reacted when a Grad missile fell adjacent to their home, leaving their safe room to tend to the wounded. We immediately decided to offer her a scholarship for her undergraduate education in recognition of her exceptional bravery and selfless commitment to helping others.

I am proud to report that the BGU Student Association and our committed students were at the forefront of organizing the local response to the social justice movement that galvanized Israel this summer. Without a doubt, these kinds of actions exemplify the values that BGU stands for: a willingness to help others, an ability to think quickly and creatively, and a heartfelt desire to pursue excellence.

The University is now in the midst of a building boom which we hope will position it to grow. The foundations are being laid for the new building for the Avram and Stella Goldstein-Goren Department of Biotechnology Engineering, as well as for the National Institute for Biotechnology in the Negev. Work will begin soon on a research laboratory building to enhance our ability to hire new researchers, and for the Ruth and Herold Dorchmann Classroom and Computer Lab Building to significantly increase the available teaching space. In Sede Boqer work is about to begin on a new building for the Ben-Gurion National Solar Energy Center and the American Associates Village at Sede Boqer.

This is all part of the University’s strategic plan in preparing for the Israel Defense Forces’ move to the Negev and to allow for the anticipated growth as part of the Council of Higher Education’s plan to absorb returning Israeli academics at research universities.

Tractors are also at work on the first building in the Advanced Technologies Park, fulfilling our dream to bring a critical mass of employment opportunities to the region.

BGU continues to grow, attracting promising young scientists and scholars while developing the core research fields where we already have strong research groups. This reflects our passionate commitment to realize David Ben-Gurion’s dream to create an “Oxford in the desert” and ensure a strong Israel that is a “Light Unto the Nations.”

Prof. Rivka Carmi, M.D.
President
bodies in motion - Dr. Raziel Riemer 4
that elusive link - Dr. Hadas Hawlena 12
in the gallery - I am a Romanian: The Tel Aviv – Bucharest Route 26
overcoming obstacles - Tamar Miller 38
a bundle of energy - Maayan Arbib 42
a sticky subject - Dr. Ronit Bitton 48
culturally competent medicine - Dr. Paula Feder-Bubis 6
emergency response - Dr. Lior Neshet 14
depth sea secrets - Dr. Nadav Shashar 28
deep sea secrets - Dr. Nadav Shashar 28
the strength of empowerment - Dr. Sarah Abu Rabia-Quder 20
writing the world - Talja Gilat 16
searching for solutions: from kabbalah to art - Prof. Boaz Huss and Dr. Ephrat Huss 30
synergy between lab and life - Prof. Ofer Yifrach 18
implicit in our attitudes - Dr. Yoav Bar Anan 22
from academia to administration - Dr. Fany Yuval 24
writing the world - Talya Gilat 16
resolving our roots - Prof. Ashraf Brik 44
cleaning solutions - Dr. Moshe Hertzberg 8
for the love of ladino - Dr. Eliezer Papo 10
writing the world - Talja Gilat 16
synergy between lab and life - Prof. Ofer Yifrach 18
pursuing her dream - Safa Abu Hani 40
protein potential - Prof. Ashraf Brik 44
researching our roots - Dr. Avi Bareli 46
working together separately - Dr. Victor Novack and Dr. Lena Novack 50
overcoming obstacles - Tamar Miller 38
a negev fan - Amit Puterkovski 39
enriching the children - Omri Afgin 43
a bundle of energy - Maayan Arbib 42
enriching the children - Omri Afgin 43
I was always fascinated by robots – how they work, how to build them,” he says.

A national champion swimmer in the 50-meter and 100-meter freestyle, he was “always attentive to how my body was working, thinking of ways to improve it and how to use it most efficiently. And when I was injured in training in 1989, tearing an abdominal muscle, it caused a shift in the body alignment. I developed back problems over the years I saw the diminishing of his physical capabilities, and now he’s in a wheelchair, so I presume this is also part of what led to my career path. Maybe I can help somebody with a disability by building a device to aid his movement, or by better understanding how our bodies work and using this knowledge to advance the field of biomechanics.”

There is also the matter of his older brother, Nachshon, who has polio. “When I was young I never thought of him as being handicapped,” explains Riemer. “But over the years I saw the diminishing of his physical capabilities, and now he’s in a wheelchair, so I presume this is also part of what led to my career path. Maybe I can help somebody with a disability by building a device to aid his movement, or by better understanding how our bodies work and using this knowledge to advance the field of biomechanics.”

Riemer, 46, whose wife, Hila, teaches marketing in the Department of Business Administration in the Guilford Glazer Faculty of Business and Management, has been working to develop devices that fit on the body and “harvest” the energy the wearer uses in motion without disturbing the natural motion. Future application of this technology could aid humans with motions they cannot, or find difficult, to perform.

“For instance,” says Riemer, “when you walk, you compress your shoe, and part of the energy used to compress your shoe is lost as heat. It’s wasted energy; you don’t need it to perform the motion of walking. So let’s say we build a device that fits into the shoe and converts this energy into electricity that can be used to power mobile electronics like cell phones, laptops and more.”

“This technology is especially important in developing countries or in remote areas where the power grid may not be well developed.

Another area where generating energy from human motion could be advantageous is for battery-operated prosthetic devices that help the handicapped with motion. But, Riemer points out, “The problem with batteries is that they run out. For example, a battery-operated prosthetic leg device that aids motion can last six to 48 hours, depending on the model and joint. Harvesting energy from user motion could reduce the need for battery recharge and allow the user to be more mobile.”

Riemer is working with professors from the University’s Departments of Mechanical Engineering and Electrical Engineering to develop these innovations. “We have rough prototypes now and we’re testing them,” he says. He describes himself as the team’s “jack of all trades,” having gotten his bachelor’s and doctoral degrees in mechanical engineering and his master’s in industrial engineering. He also worked as an industrial and mechanical engineer at Intel in Jerusalem.

“My specialty is in how human beings are built,” he says. “As a biomechanist, I know how to look at human motion and understand, or try to understand, the underlying mechanics at work – the action of the muscles, the dynamics of the forces involved. That’s sort of my thing.”

He notes that his experience as an industrial engineer allows him to analyze systems, to try to understand how
Dr. Paula Feder-Bubis opted for a career in sociology but has found herself rubbing shoulders with medical as well as non-medical professionals as a member of the University’s Department of Health Systems Management, which is a joint department of the Guilford Glazier Faculty of Business and Management and the Faculty of Health Sciences. Faculty members include -- in addition to medical clinicians -- economists, psychologists, policy-makers and even engineers. Their goal: to integrate research from diverse disciplines with the aim of optimizing patient care.

But what does that mean in practice? Feder-Bubis gives an example related to the practice of medicine in a heterogeneous community. “Today we know that it’s not enough for health caregivers to feel they have done their duty by dispensing the proper medication and instructions. If a person is not fluent in the language used, he or she may not understand the instructions. And even if health system users understand the words, they may not understand the implications due to cultural differences, or may struggle to follow directions due to cultural constraints. A woman who is busy taking care of ten children at home may be hard pressed to follow a complicated regimen of taking several medications four times a day, for example,” she explains.

Feder-Bubis emphasizes that the goal is to improve medical outcomes for all population groups. In order to do that, health services must be culturally competent. That means that hospitals and clinics, as well as every individual provider, must cope with the diversity and cultural contexts of the communities they serve by incorporating cultural knowledge into all aspects of health policy making.

That might involve hanging explanatory posters in several languages in hospitals and clinics; it might mean that health-related pamphlets be translated into different languages, then checked to make sure that the target populations actually understand the material; she continues.

Thanks to its strategic location in the heart of the ethnically diverse Negev region, researchers from the Faculty of Health Sciences affiliated with the Soroka University Medical Center have amassed considerable expertise in dealing with these heterogeneous communities, an expertise that Feder-Bubis feels should be converted into policy and shared with the rest of the country.

“Israel has undergone a sea change with regard to cultural issues,” she notes. “While 30-40 years ago Israel viewed itself as a melting pot society where new immigrants were expected to acquire fluent Hebrew in a short time, today we realize that many groups prefer to preserve their cultural heritage. We must find a way to provide these groups with good medical care despite the language barrier.”

Even non-verbal components of doctor-patient encounters have important cultural overtones. “One example is eye contact between the medical practitioner and the patient,” Feder-Bubis continues. “In Western culture, we are taught to maintain eye contact when giving out important information, but in other cultures that is not acceptable. Sometimes a well-intentioned physician may tap a patient on the shoulder or shake someone’s hand, which is also unacceptable in certain societies.”

Cultural competence, explains Feder-Bubis, is a necessary part of the accreditation process. This means that many hospitals have already started implementing cultural competence projects and are planning mandatory continuing education seminars on the subject for current hospital staff. But, she warns, basic cultural information about ethnic groups must not lead to stereotyping. “Although you should always keep in mind basic information about a group, you address the person in front of you, not the stereotype,” she stresses.

Feder-Bubis emphasizes that cultural competence is a broad concept that relates not only to ethnicity and socio-economic strata, but also to other needs of the public. “Cultural competence means that clinic hours should be adapted to the hours of working person, perhaps by opening at 7:00 a.m., and to late night hours for employees who do not finish work at four,” she continues.

Another research interest of Feder-Bubis is defensive medicine, which refers to the performance of largely unnecessary tests and medical procedures by physicians in order to reduce liability — that is, to avoid being sued. “Let’s say that a physician is 95 percent certain that a patient’s condition is benign. Given the odds, he would prefer to avoid treatment and adopt a wait-and-see approach, but if he is afraid of a medical malpractice lawsuit, he may send the patient for a series of expensive and bothersome tests. The patient has to take time off from work or household duties, undergo inconvenience or pain and even possible harmful side effects, not to mention worry and distress while waiting for the results.”

Defensive medicine has become a serious problem in other countries such as the United States, and although it has not yet reached crisis proportions in Israel, it is increasing sharply. It could be one of the reasons that medical costs are spiraling in Israel without contributing to the overall health level. “It also robs the patient-doctor relationship,” explains Feder-Bubis. “Patients prefer to feel that their doctors have their best interests at heart. When they are sent to time consuming, unpleasant and unnecessary procedures, they feel cheated. Mistrustfulness taints the patient-doctor relationship: the doctor mistrusts the patient, and the reverse.”

Feder-Bubis is presently conducting a qualitative study in which two groups of physicians (key role, opinion leader physicians and rank-and-file physicians) and one group of patient representatives are interviewed using semi-structured, in-depth questionnaires. Hopefully, the study results will be used to establish guidelines to reduce the practice of defensive medicine.

Feder-Bubis enjoys the Department of Health Systems Management and the community-oriented Faculty of Health Sciences as an ideal setting for her work. She lives in Jerusalem with her husband Yaakov and their three children. Her second child is a special-needs child, and has recently celebrated her bat mitzvah. “She was born after I had already chosen sociology as my field, but it is true that she has made me even more aware of the importance of cultural sensitivities,” she says.
Dr. Moshe Herzberg

Academia is beyond politics. Our contribution as academics in the Middle East must be to help our neighbors.

Cleaning solutions

Academia is beyond politics. Our contribution as academics in the Middle East must be to help our neighbors.

Desalination provides drinking water to the residents of arid regions throughout the world, but it is not without its drawbacks. At the Zuckerberg Institute for Water Research at the Jacob Blaustein Institutes for Desert Research, scientists are addressing these problems and seeking to make the process as safe, efficient and cost-effective as possible.

Dr. Moshe Herzberg recently received the 2010 Award of the France-Israel Foundation for Academic Excellence in the Field of Water for his cutting-edge work in addressing the problem of biofouling.

With the aid of the Quartz Crystal Microbalance (QCM) in our lab, we can perform fast "high throughput" screening of new cleaning agents to check their effectiveness," says Herzberg. "Where it previously took a month to check each agent, we can now run tests in just a few hours and can easily check a few cleaning agents a day. Many companies have shown interest in this type of service.

Some novel biological cleaning materials stem from peptides of different sea organisms. "Millions of years of evolution are much smarter than us, enabling animals such as sea anemones to prevent microorganisms from attaching to them. We can benefit from this behavior that took sea organisms millions of years to evolve," declares Herzberg.

Nanoregents: the discovery of novel biological cleaning materials

Herzberg outlines the different processes, noting that the chemical cleaning agents used in the cleaning process fall into six categories: alkalis, acids, metal chelating agents, surfactants, oxidizing agents and enzymes. Commercial cleaning products are usually a mixture of these agents, when the actual composition is often not specified. Usually old-fashioned rinsing with surfactants and chelating agents is the best answer.

"We are dealing with this problem in various ways: we can prevent it from the very beginning by either cleaning the water from nutrients on which the micro-organisms feed or by developing surfaces that are inert to this sessile mode of growth. We are also developing novel methods for removal of the microbial biofilm once it has developed," he explains. Herzberg works together with chemical engineer Dr. Slava Freger, and with chemists Dr. Roni Kasher and Dr. Sophia Belfer, who are developing modified surfaces that prevent bacteria and extracellular biopolymers from attaching to the membrane surface. Their work was recently published in the prestigious journal Biomacromolecules.

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Dr. Eliezer Papo

In the last ten years, everything has changed. Ladino speakers’ ‘kids’ – now in their fifties and sixties, have ‘returned’ in great numbers.

Ladino, or Judeo-Spanish, says Papo, a member of the Department of Hebrew Literature, refers to a language developed by the Ottoman Jews based on the languages that expelled from Spain brought with them, while adding a “local touch” to them. "Like everyone in Spain at that time, the Jews spoke Spanish," he explains. "When cast out, they settled in the Ottoman Empire and North Africa, where their Spanish continued to develop, assuming aspects of languages like Turkish, Greek, Serbian, Bulgarian and Arabic."

"Today, Ladino is in danger of extinction," says Papo. "This is not enough for a language to survive," says Papo, explaining that whether a language is living is not determined by the number of speakers alone, but by how it would close down on the Sabbath. In 1917 an accidental fire ravaged the city, killing many Jews and causing it to return. During the Holocaust, some 56,000 of Thessaloniki’s Jews, 95 percent of the Jewish population, were deported to concentration camps and murdered. Today, around 1,000 Jews live there. "When I came to Israel in 1991, the average age of those speaking or interested in Ladino was 65," recalls Papo. "In the last ten years, everything has changed. Ladino speakers’ ‘kids’ – now in their fifties and sixties, have ‘returned’ in great numbers." Throughout Israel, there are growing circles who meet for Ladino movies, musical events, lectures and poetry. At BGU, the Gaon Center-sponsored Salon Gaon, a group of about 120 people who have Bulgarian, Greek, ex-Yugoslavian and Turkish roots, regularly enjoy Ladino events. Before focusing on Ladino, Papo graduated from law school in his native Sarajevo, Bosnia. Filled with questions that no one in the former Yugoslavia could answer, Papo came to Israel to study in a yeshiva. Yeshiva learning, though, lacked the systematic approach he desired. Seeking a more academic angle, Papo began to study Talmud at the Hebrew University of Jerusalem. There, however, he felt that style was stressed at the expense of content. "I was frustrated and began taking courses in Ladino," says Papo, who is "at home" in all Slavic and Romance languages, as well as in English and Hebrew. Ladino fell in love with the subject immediately and has taught, written and even appeared in a film on the topic. In addition to heading the Gaon Center and teaching a full course load, he returns twice a year to Sarajevo in the Hebrew months of Tishrei and Nisan to oversee holiday services as the community’s rabbi. The Sarajevo Jewish community has made a remarkable comeback. "In 1945, it seemed like the end," says Papo. "Of the 12,000 Jews that had lived there, only 2,000 returned from the camps. Three years later, in 1948, another thousand Jews left for Israel."

In addition to its musical beauty, rich history and religious significance, Ladino has another – unsung, but no less important – quality: it is funny. Humor has always had an important role for Jews in the Diaspora. No exception, Ladino is rich in colorful phrases, curses and nicknames. Papo continues this tradition in his classroom. In courses titled: “And Thou Shall Jest with Your Son: Parody, Grotesque and Burlesque in Modern Judeo-Spanish Literature,” and “Humor in Judeo-Spanish Literature,” he addresses the serious business of laughter. In one course assignment, for example, he had students write personal parodies of the traditional texts, and was delighted to receive prayers that featured celebrity court cases and mortgage payments. “I bring them this genre and they make new creations according to the model," says Papo. “Most importantly, after this exercise, they knew the real texts inside and out. I feel I am helping to restore a part of the Jewish heritage."
What is the most dangerous creature in the world? After pondering this question, most people are likely to answer sharks, which kill an estimated 25 people per year globally, or crocodiles, which are responsible for the deaths of several hundred persons, but almost no one would instinctively say mosquitoes which, as carriers of malaria, yearly claim the lives of one to three million people globally, making them the world’s greatest killers.

Like malaria, other vector-borne afflictions such as plague, dengue fever, Chagas disease and leishmaniasis are, in spite of medicines and pesticides, still extremely virulent. In addition, new diseases like West Nile fever and Lyme disease, as well as six different new Rickettsial diseases have appeared – and are rapidly spreading.

While many researchers have focused on a few specific diseases or microbial pathogens at a time, Dr. Hadas Hawlena of the Department of Life Sciences looks at the big picture.

“There is no chance that pesticides or medicines alone will solve this problem: the parasites quickly become immune to the agents used,” she says. And as everyone who has waged war against a dog’s ticks or fleas knows, treatments that were effective a year, or even six months ago, may now be powerless.

“We must look at broader communities, not just single species,” explains Hawlena, who has a firm background in ecology. “Many organisms that seem unconnected are actually linked. One of my major goals is to understand the different factors that affect these relationships and identify which of these factors are most important.” While there are other Israeli researchers focusing on vector-borne disease, she is the first in the country to work on the ecology of this type of ailment.

Using rodents as her model, Hawlena examines the interaction between the hosts, arthropod vectors and the bacteria that live in them, focusing on behavioral response, physical responses and population dynamics in the field.

Checking ecological factors that have changed as a result of human presence, Hawlena and her team perform metagenomic studies on ticks and fleas to examine genetic material recovered directly from samples in their natural environment. This field facilitates studies of organisms not easily cultured in the laboratory. With recent developments in molecular techniques enabling millions of sequences to be performed in a matter of hours, metagenomic studies can reveal about 95 percent of bacterial species living in a single arthropod vector, at great savings of time and money.

Significantly, recent research has shown that while some of these bacteria are not connected to each other, they often compete for resources on the same host. “There is evidence that a few species of bacteria can exclude others,” she says, referring to a finding that could, one day, lead to an agent for countering deadly diseases.

Likewise, in Indiana, where Hawlena did post-doctoral work, she has experimentally shown that even closely related bacteria can kill each other, and this warfare affects their degree of virulence to the host. “If we could understand why and how bacteria compete, we could turn this competition to our own benefit,” she says.

Do we have a chance against parasites? “Yes,” replies Hawlena, “but to turn research into tools we need to understand what’s happening. Many outbreaks of disease occur when nobody even knows about the presence of the parasites that cause them.” According to Hawlena, we need to be armed with this information ahead of time. “The problem is that the parasites are running ahead of us, and so we need at least to solve some of their mysteries in order to cope with them.”

Hawlena is well-versed in ecology, evolutionary biology and behavioral ecology, having completed her undergraduate and graduate studies at BGU. She now lives with her family at the University’s Sede Boqer campus and feels completely at home at both the University and in its surroundings. Despite her upbringing in the green Haifa hills, 37-year-old Hawlena describes herself and her husband as “desert people. We love everything about it here: the animals, the tranquility, the views and the nature.”

Hawlena has two daughters, both of whom were born during her post-graduate studies at the University of Indiana. The gifts, it appears, are enjoying a rather idyllic childhood at Sede Boqer, which Hawlena says is a very tight community, not unlike a kibbutz. “We have lots of friends here. This place attracts special people, with whom we connected immediately.”

Dr. Hadas Hawlena
in Israel, where MADA introduced the first professional paramedic course in the 1980s. About ten years later, the Department of Emergency Medicine in the Leon and Mathilde Recanati School for Community Health was built at the Joyce and Irving Goldman Medical School, which opened its Department of Emergency Medicine in 1998. It opened its Department of Emergency Medicine.

"Emergency personnel have to be able to think fast under pressure and make decisions quickly, without having much information. They must discern between the significant and the unimportant, to see what is life and limb-threatening, and provide timely treatment," explains Nesher.

Central to this program is the state-of-the-art Simulation Center, which uses simulation based on sophisticated computerized mannequins to train students, says Nesher. "We can program them to 'have' a heart attack, respiratory emergency, head injury, asthma attack, pulmonary problem – and even a baby. Students administer medical treatment to mannequins as if they were live patients. If a mannequin doesn’t receive proper treatment, it will ‘die,’” Nesher explains.

The lifelike mannequins “speak” in pre-programmed sentences that relate to specific situations. While the students “treat” their inanimate patients, instructors watch them and answer their questions from behind a one-sided window. “The Simulation Center creates a safe training environment and presents emergency situations on demand. With the latest technological advances of the last four or five years, we can reenact just about anything,” continues Nesher.

The facility also addresses the ethical issue of allowing students to learn at the expense of live patients in critical situations. The Simulation Center enables medical students to train and practice real medical procedures. By the time they care for their first patients, they are already far more experienced than students in other EMS programs.

The Simulation Center also offers experienced doctors, who can review and refresh skills that may have become rusty. A new, larger simulation center is being built at the Joyce and Irving Goldman Medical School, made possible through the generous support of the Goldman Family Foundation. It will include classrooms to train not only future doctors and nurses, but those studying physical therapy and pharmacology. Interdisciplinary medical training makes sense, as it mimics real hospital interactions.

"This is a move from didactic learning to application and diagnosis," says Nesher. "The approach to medical training has shifted from being paternalistic and top-down to allowing students to practice, hands-on, the wealth of information they receive."

Doctors at the Soroka University Medical Center, BGU’s teaching hospital, need to be particularly rich in know-how. Beer-Sheva is home to many different population groups, such as Bedouins and Russian immigrants, many of whom are elderly, as well as African refugees from Sudan and Eritrea. Each group comes with its own language, culture and diseases. For example, many Bedouin women suffer from “Bedouin lung,” a serious pulmonary ailment caused by cooking in closed tents with no ventilation. Immigrants from Ethiopia pose a language challenge, while African refugees may be ailing from diseases such as malaria and tuberculosis in addition to not speaking Hebrew, Arabic or English.

“We must find a way to communicate and provide medical care to all these groups,” says Nesher. "As the only hospital in the northern Negev, which contains a population of about a million people, we at Soroka can’t say we’re swamped and close the doors to anyone."

Nesher’s personal door has always been wide-open. Born in Canada, he spent his early childhood in the U.S. and made aliya with his family when he was eight years old. Joining MADA as a volunteer in high school, he continued volunteering and working for the organization during and after his military service as a medical instructor and ambulance staff member. After the army, he studied medicine at BGU and continued to work, teach and train for MADA. In 2001, he joined the medical staff of the Soroka University Medical Center.

Nesher now lives in Beer-Sheva with his wife, a nurse in Soroka’s Intensive Care Unit, and their two young daughters.

“I enjoy treating patients, and being able to make a difference,” says Nesher. "With correct triage and treatment, you can see life-changing differences immediately – even in the most extreme situations."

Dr. Lior Nesher

The approach to medical training has shifted from being top-down to allowing students to practice, hands-on, the wealth of information they receive.
Math is a language. It’s the language of logic and structural patterns. It’s the language of computers, of engineering and science.
synergy between lab and life

It’s deeply satisfying to see your expectations fulfilled, but more importantly, it shows you where your next step is – it poses new questions and sometimes opens new horizons.

Tracing his path to the Negev, he says: “I was sitting in my office, talking with Noam and our student Yuval Ben-Abu about the results of the experiments we’d conducted, and we saw that the gates have to be open. Working with departmental colleague Dr. Noam Zilberberg, Yifrach says: “Our hypothesis was that the two gates were ‘communicating’ with each other, that the opening or closing of one gate was dependent on the opening or closing of the other. In other words, that there was a synergy or coupling between them.”

The proof that the hypothesis was correct – that there is a synergy, a communication, between these two gates of the ion channel protein in the neuronal brain cell – came in 2009. “I was sitting in my office, talking with Noam and our student Yuval Ben-Abu about the results of the experiments we’d conducted, and we saw that the results were positive, that everything fell into place,” he says. “It’s deeply satisfying to see your expectations fulfilled, but more importantly, it shows you where your next step is – it poses new questions and sometimes opens new horizons.”

Yifrach, 44, has been living in Midreshet Ben-Gurion for nine years. Tracing his path to the Negev, he says: “I grew up in the center of the country, in Bat Yam and Kfar Saba. As an adult I wanted to combine my academic work with the kind of life I wanted to live, which is not in the center, but in the periphery. I wanted to live in the south. It’s a different way of life in many dimensions; one that fits our family.”

Academically as geographically, he started out far from where he is now. “I received my bachelor’s degree at the Hebrew University of Jerusalem in geology and planetary sciences, then I went to the Weizmann Institute of Science and began studying oceanography, but then I met a very unique professor, Amnon Horovitz, who, by his personality, his character, his mind, attracted me to the biological sciences. He was my mentor, and I switched to biology. He influenced my thinking about synergism in biology, and I did my doctorate with him.”

Afterward, Yifrach carried out post-doctoral research on ion channels at New York’s Rockefeller University with Prof. Roderick MacKinnon, who won the Nobel Prize in Chemistry in 2003. “Rod is an extremely brilliant scientist and I learned a lot during my stay at his lab” he says.

Asked why he chose BGU, Yifrach says it was a combination of geography, academics and person-to-person considerations. BGU emphasizes the values of being involved with the student community and the wider social environment of the Negev: “I like the people here and the informal relations between faculty and students.”

And Yifrach contributes to the student-faculty relationship in his capacity as chairman of the Department of Life Sciences’ Teaching Committee for Students Affairs. “I’m sort of the ombudsman for the 500 bachelor’s degree students in the department,” he says. “The University has a set of regulations addressing different aspects of the students’ studies. But naturally it cannot cover all possible scenarios, and flexibility is needed to accommodate the specific needs of specific students. If a student has a bureaucratic problem, if he or she has a complaint, I listen and see if something can be done. I also serve as an academic advisor for the students. For instance, if a student experiences difficulties in his or her studies, I’ll give advice regarding the possible sources of such difficulties and the tools the University has to help in overcoming them. It’s one of the cardinal principles at BGU – that the University is supposed to impart knowledge and advance research, but it’s also supposed to encourage a humane, enriching social atmosphere on campus and beyond.”

Listening to a student’s worries about balancing studies with a job, family or military responsibilities is a long way from testing the communication between gates on the ion channel proteins of a neuronal brain cell. For Yifrach, the two poles of his work at BGU complement each other.

Call it synergy.

Prof. Ofer Yifrach
Many women run “informal” markets inside their homes. They take advantage of their “female space” to earn money.

In some communities, women pool a percentage of their monthly National Insurance allowances (which are paid to all mothers in the state.) “Each woman in turn is given the total sum collected at the end of the year, for example, if someone is about to give birth or has special needs. They portion out these government grants to each other according to their needs,” she explains.

“Suddenly they are providing an additional source of money for the household, and I wondered in what ways these informal ways of making a bit of money might empower these women,” adds Abu Rabia-Queder, an authority on gender and development in Bedouin society in Israel, who was awarded a grant from the Israel Ministry of Science and Technology to study this phenomenon. The three-year research project, “Avenues of Economic Participation for Rural Bedouin Women,” is being carried out together with Dr. Avigail Morris of the Arava Institute for Environmental Studies, and is examining patterns of informal economic participation by rural Bedouin women with the aim of finding ways of strengthening their economic empowerment.

In the pilot survey Abu Rabia-Queder asked Bedouin women engaged in the modest home businesses if they ever earned money that contributed to the household.

The replies, she relates, were somewhat surprising. “They told me there was no such thing as ‘mine and yours,’ but rather a great deal of collaboration between the women and their husbands, the women and the rest of the family members and among the women themselves. These reciprocal relations are the source of their feeling of power.”

The study focuses on four unrecognized Bedouin villages in the Negev. She hopes the research will result in a model that can be used to influence policy makers and help Bedouin women.

As recently as 20 years ago, none of the Bedouin women in the Negev went to university and very few completed high school. Abu Rabia-Queder, now 35, gained early fame as the first Bedouin woman in Israel to earn a doctoral degree. When she started her studies at BGU, she was one of just eight Bedouin women. Now there are hundreds, partly because of the support of the Robert H. Arrow Center for Bedouin Studies and Development, which aims to promote education within the Bedouin society of the Negev. She later did her post-doctoral studies at the Gender Studies Center at the Hebrew University of Jerusalem and at the International Department of Development Studies at Oxford University in the UK.

Her is a family of outstanding achievers. Abu Rabia-Queder’s father, Dr. Yunis Abu Rabia, was the first Bedouin physician in Israel and opened the first Bedouin medical clinic in Rahat, near Beer-Sheva. He encouraged all his children to pursue higher education: Sarah’s four sisters already possess or are planning to acquire Ph.D.s, her brother has just earned his bachelor’s degree. In addition to many academic awards and published studies, Abu Rabia-Queder has written two books: Excluded and Loved: Educated Bedouin Women’s Life Stories, and Palestinian Women in Israel. Identity, Power Relations and Coping, co-edited with Naomi Weiner, both in Hebrew. She also co-edited with Pozina Motzafi-Haller a special issue of the journal HAGAR 2009: The Politics of Gendered Development. Abu Rabia-Queder describes herself as having grown up as an “insider/outsider” in three cultures: Bedouin, Jewish and northern Arab. “I went to a Bedouin elementary school, then a Jewish high school. My mother is an Arab from the north, and this was another part of my culture,” she says. “It is a wonderful advantage. You can view many cultures and be open to other ideas and see the advantages and disadvantages of all of them.”

In a sense, Abu Rabia-Queder’s lab is at her own doorstep. Another of her research projects involves the challenges of coping with unfamiliar cultures. Having already published a comparison of Palestinians studying in Israeli universities and those studying in Jordanian institutions, her latest research project relates to Jordanian and Palestinian students studying at BGU.

Abu Rabia-Queder and her husband Hassan, a CPA who runs his own accountancy firm, live with their three young sons in Beer-Sheva. The boys attend a local bicultural school run by the Hagar Association, where Jewish and Arab children learn side by side.

She admits to a personal motivation in her involvement with her research subjects. “Because I am involved, because I am also part of this society, I think of what I can do to contribute to it,” she states. “I do the research because I love the academic aspect of my work, but when it is about my own society, it gives me even more motivation.”

...
Dr. Yoav Bar Anan has an attitude problem. It is his job to shed light on the issues that shape our attitudes, and their effects on our behavior. A social psychologist, Bar Anan defines his job as finding the connection between what we want and like and what we believe that we want and like.” For Bar Anan, a member of the Department of Psychology, this primarily means looking at how we perceive ourselves and other people.

“Social psychology asks the most interesting questions about how people create their own self-image and knowledge,” says the 34-year-old faculty member. “I am fascinated by how we come to like or dislike ourselves, other people and groups.” To this end, he looks both at how people perceive themselves and other individuals, and their attitudes on different social groups. One example of this is the study of stereotypes and how they are formed.

“I want to know what drives people and human interaction,” continues Bar Anan. “I think we all seek the rules that govern the behavior of human beings, but I couldn’t be a self-proclaimed expert in social psychology if I didn’t try to find out the answers.”

In this pursuit, Bar Anan earned his bachelor’s and master’s degrees in social psychology from Tel Aviv University, and completed his Ph.D. at the University of Virginia under Dr. Timothy Wilson, one of the world’s leading experts on social psychology.

“When studying attitudes regarding other people, you can’t ask subjects outright what they think about blacks, homosexuals, Jews or any other group. You need to utilize other methods,” explains Bar Anan, who has become a self-proclaimed expert in measuring people’s attitudes without asking them a direct question. To assess people’s attitudes indirectly, social psychologists use a number of measures collectively called “implicit measures.” These are simple tasks administered on a computer, and are based on the automatic emotional reaction that we all produce when we see or hear any object (e.g., a face with distinct ethnic features).

The most popular implicit measure of attitudes is the Implicit Association Test (IAT). During the test, the participant is required to categorize words and pictures using two computer keys. The researchers measure the time that it takes the participant to respond to the different objects presented on the screen and use that measurement in order to compute the participant’s automatic evaluation of the objects.

Bar Anan joined his colleagues in developing a website that offers the test so people could check themselves. Hundreds of thousands of people did, examining their own preferences regarding such groups as whites and blacks, homosexuals and heterosexuals and fat and thin people. For its visitors, the website provides mainly an entertaining opportunity to learn about this method and think about the concept of automatic evaluation and how it may influence their judgment in day-to-day life. For Bar Anan, this provides thousands of data points to increase the knowledge about these measures and about automatic evaluation.

These tools represent no less than a revolution, he believes. “We no longer have to depend on what people say. While people do know their own attitudes, stereotypes and associations regarding certain groups, they aren’t necessarily aware of the psychological processes that are at work. They don’t know when those attitudes are actively influencing them.”

Currently, Bar Anan is doing basic research on how events in life shape people’s attitudes and how these attitudes influence people’s behavior and judgment. Ultimately, he plans to apply this question to the subject of Jewish-Arab relations: how attitudes are formed and how they change them. In the same way, he will examine how men and women are influenced by stereotypes of, for instance, men as leaders and women as supporters. Here, he is planning to look at people’s initial attitudes and check for changes after the subjects engage in collaboration programs.

Bar Anan is also examining issues of self-image among populations such as homosexuals and lesbians, left and right-wing Jews and the ultra-Orthodox. “So far we have made some interesting findings,” he says. “For example, contrary to some past research, we found that gay individuals display overall positive self-images, and that left and right-wingers are equally pro-Jewish. The ultra-Orthodox Jews show a better correlation between explicit (self-reported) attitudes and implicit (automatic) attitudes than the other groups, perhaps suggesting that their feelings and thoughts are more similar than those of secular Jews.”

Social psychology asks the most interesting questions about how people create their own self-image and knowledge

On another line of research, Bar Anan also looks at how the means to goals turn into the goals themselves. “Money might be a classic example. It seems that people often want to pursue the act of making money, rather than focusing on what money can buy. The means become the goal. Helping behavior might also be interesting in that context. My lab tests the hypothesis that people often want to help in order to feel superior.”

“They might think that their ultimate goal is to help, but their actual motivation is to feel stronger. Likewise, people may view good grades as being significant in gaining acceptance to a college program or they may assume value unto themselves. We try to isolate the causes of what make the means become independent goals.”

One thing is certain: the young researcher’s attitude towards BGU, where he has worked for two years. “BGU is a very good psychology research university, and our department is one of the best in Israel,” he declares. “Being here is a lot like living in a college town in the U.S.” continues Bar Anan, who lives in Beer-Sheva. “The students’ social lives here are excellent. Since this is not a metropolis, people are brought together, and the spirit of the University further encourages this togetherness.”

Dr. Yoav Bar Anan

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Implicit in our attitudes

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Dr. Yoav Bar Anan

Social psychology asks the most interesting questions about how people create their own self-image and knowledge
Municipal authorities must be encouraged to make empirical use of our knowledge, including information about how our studies can reveal what citizens really want.
The exhibition, curated by Prof. Haim Maor and students in the Curatorship Course of the Department of the Arts, examined Romanian identity as manifested in the works of 20 Romanian and 20 Israeli artists. The Romanians are contemporary artists who deal with their national identity in the face of the accelerated changes taking place in their country. In the aftermath of the overthrow of Ceausescu's regime, the massive infiltration of Western European, American and global elements into Romania grew significantly. The artists presented the new reality through various means, reactions and stances: referring to critical and painful memories from the old communist regime, yearning for traditional values; folk heritage and religious symbols; criticizing self-disparagement; and the appropriation of global consumer and cultural values.

Together with these artists, the exhibition featured Israeli artists of different generations - Romanian born, or descendants of Romanian-born parents. In their works, the latter artists referred directly or indirectly to their country of origin as well as to its heritage, culture, landscape and spirit, by fascinatingly merging old feelings and memories that still accompany them in their current lives in Israel.

I Am a Romanian: The Tel Aviv - Bucharest Route

Erica Weisz Schveiger, *Split Memories*, 2010
collage-drawing, photographs, fibers on transparency paper, 42x30
artist's collection

screen printing on cardboard, 88x50
artist's collection

Tudor Prisăcariu, *Entropy*, 2010
color photograph, 40x60, artist's collection

Lambda print, 40x60, artist's collection

Marcel Janco, *Self-Portrait*, end of the 1920s beginning of the 1930s
15.7x13, private collection

Florin Ciulache, *Reality TV*, 2003
oil on canvas, 84x110, artist's collection

Druv Mandiya, *Immigrant’s Lens*, 2001
Lambda print, 40x60, artist's collection
Oceans cover 70 percent of the earth’s surface, contain huge concentrations of life and provide sources of food, energy, medicine and income to the world. Scientists and students of BGU’s unique Marine Biology and Biotechnology program, who study the ocean’s organisms and habitats, are working to unravel its secrets, helping to ensure the future of our planet.

BGU marine biologist Dr. Nadav Shashar is primarily a visual scientist who has discovered a private mode of communication between marine animals. But also, he says, “I am personally motivated by the desire to give back to the environment. I make my living from the marine world and want to find a way to contribute to and relieve the pressure on it.”

Shashar answers his calling at BGU’s Eilat campus, where he serves as a resident marine biologist and head of the Dolphin Behavior Research Laboratory. Offering degrees in marine biology and biotechnology from the undergraduate to the Ph.D. level, this young BGU campus hosts basic and applied science research. Affiliated with the Department of Life Sciences, the program, founded by Prof. Amir Sagi and currently headed by Dr. Uri Abu, both of whom are also members of the National Institute for Biotechnology in the Negev, operates in conjunction with the National Center of Mariculture of the Israel Oceanographic and Limnological Research Institute. It offers a variety of advanced courses and hands-on projects for Israeli and visiting students from abroad.

“Students are involved in projects ranging from developing hormones for fish to designing coral reefs. This is a good place to do a semester abroad in marine biology,” says Shashar. “We have a solid infrastructure and our faculty members are able and willing to teach in English.”

Reef conservation is an important focus at the Eilat campus. “There are too many visitors and too few reefs in the region. Divers are the best advocates for reef conservation, but also some of their worst enemies,” explains Shashar, who has played a role in a project that creates artificial reefs. The five-year-old joint effort between Israeli and Jordanian scientists is supported by the USAID as well as by Marlene and Samuel Halperin, Peter Schechter and Rosa Puech, all of Washington, DC, and aims to attract fish and divers, giving existing reefs a much-needed break from overuse.

“The project has been a success on all counts,” says Shashar. “The artificial reef has attracted the community of fish, including rare species, that we hoped for,” says Shashar. “Now more than 40 fish species swim through or live on the reef, similar to the number found at natural reefs. These fish range from the common anthias or sea goldie, chromis and butterfly fish, to the far rarer ghost pipe fish, specific gobies and pegasus fish. The reef has also succeeded in attracting divers. By steering divers away from natural reefs, the man-made construction eases congestion there, allowing for recovery from damage inflicted in recent years. It is for this reason that the Israeli Nature Protection Authority has decided to keep the new reef indefinitely.

The project has been a boon not only underwater, but on land relations as well. Collaboration between the Israeli and Jordanian scientists went smoothly, and the two teams are currently seeking funding for further research. Their artificial reef is built of specially designed concrete, then planted with nursery grown corals. The cement used is both strong and attractive to marine life. In fact, Shashar and his team intentionally roughened the structure’s surface texture so that small creatures would easily find places to hide. “Although there are other artificial reefs in the world, this level of design and preparation for planting coral is unique,” notes Shashar.

While hundreds of new corals in the nursery can be replanted to replace damaged corals on natural or artificial reefs, Shashar stresses that artificial reefs are one tool in reef conservation, not the tool. “They must be implemented in conjunction with regulations, and above all, with the establishment of marine protected areas.”

Wearing his other hat, Shashar serves as head of the campus’s Dolphin Laboratory, which operates through an agreement between BGU and the nearby commercial Dolphin Reef, where it is housed. The facility is home to eight dolphins, who are fully habituated to the location – even if the nets surrounding the area are torn, they will always return. Visitors can swim with the dolphins, and “dolphin assisted therapy” is available for children with low self-esteem or communication problems. Volunteers from around the world come to the lab for stays of at least a month. They must have a scientific approach, says Shashar, who will automatically reject any student who wants to come “just to hug the dolphins.”

One of the lab’s current projects probes the animals’ search for useless information. In other words, it focuses on curiosity, a component of intelligence. There are different levels of curiosity, explains Shashar. It may play a part in survival, as when an animal looks for a hiding place or food, or it may have no immediate benefit.

Each dolphin is fed at a different spot and only from his own bucket. Nevertheless, even when they are completely sated and don’t clean their buckets, the animals check what their friends got to eat. “This represents a high form of curiosity: searching for knowledge for the sake of knowledge,” says Shashar.

Another research project at the lab involves acoustics, focusing on rhythm. “Much of our communication is connected to beat and tempo. We are looking to see if rhythm has meaning to dolphins, as well.”

Though he was born in Jerusalem and grew up in Tel Aviv, Shashar is anything but a city boy. He fell in love with snorkeling at Sharm El Sheik in Sinai at age 10, and began to volunteer in the Sinai’s Naama Field School two years later. At 13, he was already scuba diving and he went on to do his military service in the Navy. After doing his bachelor’s and master’s degrees at Tel Aviv University in zoology, his Ph.D. in biology at the University of Maryland and post-doctoral work at the Marine Biological Laboratory in Woods Hole, Massachusetts, Shashar made his way to Eilat, where he lives with his wife and two daughters.

“BGU is very dynamic, there is close contact between researchers in different areas, and in Eilat, the intensity of interaction is no less than incredible,” says Shashar, who never ceases to be amazed by the University’s supportive atmosphere.
Prof. Boaz Huss

The widespread interest in Kabbalah, especially among the young, is part of New Age Culture – the seeking after spirituality, the turning to the East

Boaz has found himself in demand for interviews from the media in recent years, ever since Madonna popularized Kabbalah among the trendy set in the United States and pioneered the custom among Kabbalistic celebs to visit Israel. He studies Kabbalah not only as a thread in Jewish history, but as a sociological phenomenon among both Jews and gentiles today. “The widespread interest in Kabbalah, especially among the young, is part of New Age Culture – the seeking after spirituality, the turning to the East. But their approach to Kabbalah isn’t traditional, it’s modernist, or post-modernist,” Huss explains.

When Madonna became interested in Kabbalah in the 1990s, there was a complete dichotomy between the budding “Hollywood” version, led by Rabbi Philip Berg, and the old, Orthodox, predominantly Sephardi approach found in Israel. “When Rabbi [Yitzhak] Kaddoure was asked his opinion of Madonna,” says Huss, referring to Israel’s senior Kabbalist who died five years ago at the age of 100 plus, “he replied, ‘Who’s Madonna?’” Things have changed since then, and now the two poles of modern Kabbalah tradition have come to resemble one another in some ways. “It’s mistaken to see a strict dichotomy here,” says Huss. “There is a tension between the two, but also a competition for adherents, so each side has adopted some of the other’s approach. For instance, traditional Kabbalah used to be about secret knowledge, but now it’s open to all. On both sides, the practice of Kabbalah..."
advances in communications technology – the greater ease in publishing books – just as the spread of Kabbalah today is aided by the Internet and Facebook.”

Huss began researching traditional Kabbalah in 1982. “At the time, it was generally thought that Kabbalah was fading into oblivion,” he says. “But now I think it’s probably accurate to say that we still have not seen the peak of its popularity.”

About being married to a BGU colleague, even in such a different field as social work, he smiles, “It’s nice to be able to have a cup of coffee together and talk about work. We learn a lot from each other.”

Ephrat specializes in using art in creative ways to help marginalized populations such as poor Jews in Beer-Sheva’s Dalet neighborhood and Bedouins throughout the Negev. “The use of art in social work is a discipline being taught in Israel only at Ben-Gurion University,” she says. “It’s a way to understand these populations and to give them a chance to explain how they understand their problems. Art by definition taps into peoples’ creativity and resources, rather than defining them as passive and problematic. Art gives voice to marginalized groups, enabling social advocacy that can help to adjust government policy that affects them.”

The use of art in social work is very advanced in Israel, and not by coincidence. “There is such a mix of cultures and languages here that spoken language is not always the most effective way for people to express their needs. Art, however, is a universal language; it’s something everyone can use for self-expression. It’s action-oriented, and the clients whom social workers deal with will respond better to art than, say, to psychotherapy,” she continues. “It’s also a very popular technique with social work students because it allows them to be creative and hopeful in a field where they are liable to get burned out by impossible caseloads and shrinking government budgets.”

Huss encourages students to work on projects that go beyond filling out forms. “For example, a student working with young girls in the Dalet neighborhood had them photograph the things about their environment that they liked, and the things they didn’t. The photos showed that the girls were especially upset about all the dirt and garbage in the neighborhood, and in the group discussions it came out that they weren’t just upset about the aesthetics, but that they felt the dirt and garbage reflected on them personally. It damaged their self-esteem. The group sent a letter to the Beer-Sheva City Council containing this message, to dramatize what’s at stake in the mundane issue of garbage collection in the neighborhood – thus, the arts initiated social change.

“In a project involving Bedouin children from recognized and unrecognized settlements,” Ephrat continues, “one of my students had them draw pictures of their homes, and these showed very blatantly how the children in unrecognized settlements experience a greater feeling of risk, trauma and deprivation than those in the recognized villages. The pictures of home in the unrecognized settlements were disconnected from the ground, sometimes torn down, and without doors or windows.” Again, this was important evidence for policy makers.

For all the benefit these creative tools offer the clients of social workers, they also have a therapeutic effect on the social workers themselves, says Huss. “During Operation Cast Lead, social workers and hospital workers were exposed to so much trauma in clients and patients that it was having a secondary traumatic effect on them as well. We held art workshops with them and found it was an effective way of getting them to bring their feelings to the surface and to self-regulate, as a preliminary step to helping others.”

“My claim,” Huss concludes, “is that creativity helps mobilize resistance and problem-solving ability not only in at-risk populations, but also in the people who serve them.”

Originating from Jerusalem, Ephrat came to BGU after Boaz was given a faculty position here. “At the beginning, I missed Jerusalem,” she acknowledges. “But soon I realized that the Negev offers endless opportunities for people in my field. As for BGU, it’s an innovative university; it gravitates to new ideas. So it turns out we both came to the right place.”
Urban Micromclimates: Designing the Spaces Between Buildings
Eytanit Erel, David Pearlmutter and Terry Williamson
Earthscan Publications Ltd., 2011
The quality of life of millions of people living in cities could be improved if the form of the city were to evolve in a manner appropriate to its climatic context. Climatically responsive urban design is vital to any notion of sustainability: it enables individual buildings to make use of renewable energy sources for passive heating and cooling; it enhances pedestrian comfort and activity in outdoor spaces; and it may even encourage city dwellers to moderate their dependence on private vehicles. Prof. Eytanit Erel and David Pearlmutter from the Jacob Blaustein Institutes for Desert Research and Prof. Terry Williamson from the University of Adelaide, Australia, have co-authored this volume that bridges the gap between climatology research and applied urban design. The book provides archetypal and urban design professionals with an understanding of how the structure of the built environment at all scales affects microclimatic conditions in the space between buildings, and analyzes the interaction between microclimate and each of the elements of the urban landscape.

The Washington Haggadah
Joel ben Simeon
Introduction by David Stern
Harvard University Press, 2012
After the Bible, the Passover haggadah is the most widely read classic text in the Jewish tradition. More than 4,500 editions have been published since the late fifteenth century, but few are as exquisite as the Washington Haggadah, which resides in the Library of Congress. Now, a full color facsimile edition brings this beautiful illuminated manuscript to a new generation. Joel ben Simeon was among the most gifted and prolific scribe-artists in the history of the Jewish book. Prof. Katin Kogman-Appel from the Department of the Arts has written an introduction with an understanding of how the structure of the built environment at all scales affects microclimatic conditions in the space between buildings, and analyzes the interaction between microclimate and each of the elements of the urban landscape.

The Contradictions of Israeli Citizenship
Guy Ben-Porat and Bryan S. Turner (eds.)
Routledge, 2011
This book, edited by Dr. Guy Ben-Porat from the Department of Public Policy and Administration in the Guilford Glazer Faculty of Business and Management together with Prof. Bryan Turner from the University of Western Sydney, Australia, provides an integrated analysis of the complex nature of citizenship in Israel. Contributions from leading social and political theorists explore different aspects of citizenship through the demands and struggles of minority groups to provide a comprehensive picture of the dynamics of Israeli citizenship and the dilemmas that emerge at the collective and individual levels. The book identifies and explores processes of inclusion and exclusion that are general issues in any modern polity with a highly diverse civil society. While the focus is unambiguously on modern Israel, the interpretations of citizenship are relevant to many other modern societies that face similar contradictory tendencies in membership.

Gideon M. Kressel
Edwin Mellen Press, 2010
In this study in economic anthropology, Prof. Gideon Kressel from the Jacob Blaustein Institutes for Desert Research focuses on micro-changes in economic and social orders in Eastern Europe, mainly in Bulgaria and the former Yugoslavia, in the 1990s. The fall of the Soviet Union and the communist regimes of modern Israel, the interpretations of citizenship are relevant to many other modern societies that face similar contradictory tendencies in membership.

Judgment, Decision-Making and Success in Sport
Michael Bar-Eli, Henning Piessens and Markus Raab
Wiley-Blackwell, 2010
What determines “success” and “failure” in sports? Clearly, good judgment and decision-making play a crucial role in influencing sporting outcomes. But what do we really know about the implications of judgment and decision-making on sport? Prof. Michael Bar-Eli from the Department of Business Administration in the Guilford Glazer Faculty of Business and Management, together with co-authors Prof. Henning Piessens from the University of Heidelberg and Prof. Markus Raab of Flensburg University, introduce the fundamental approaches of Judgment and Decision-Making (JDM) research in psychology and apply them directly to a variety of JDM problems in sport. Specific judgment and decision-making problems encountered by athletes, coaches, managers and referees are considered, and recommendations are made for their effective resolution. Topics include evaluation of athletic performance, motivational and emotional judgments, optimizing judgment processes, the decisions of coaches, managers and referees, and the prediction of sports results.

International Business: Theory and Practice
Ehud Menipaz and Amit Menipaz
Sage Publications Ltd., 2011
What are the fundamental challenges and emerging trends of international business today? What are the impacts of corporate social responsibility and the ever-expanding use of digital technology on corporate strategies and executive decisions? Prof. Ehud Menipaz from the Department of Industrial Engineering and Management and Amit Menipaz from the Ivey SDC Development Center, address these questions by providing broad overview of the subject. Current critical issues in international business are analyzed and explored, including business ethics, corporate social responsibility in an era of unprecedented globalization and the rise of the global entrepreneur and the democratization of competition worldwide, as well as applications of technology in a digital economy. The book covers key issues in international business, including ways to leverage digital technologies and supply chains in the global context. To help the reader understand these issues with relevance to business practitioners, this textbook includes insights from global managers and entrepreneurs.
Illicit Drugs: Health and Medical Issues Today
Richard E. Jarolimek and Peter L. Myers
Greenwood, 2011
Some 20 million Americans aged 12 and older use marijuana, cocaine, heroin, amphetamines, ecstasy or other illicit drugs. The cost to society is enormous – more than $500 billion annually for related expenses such as health-care and treatment, social services, law enforcement and losses due to crime. Prof. Richard Jarolimek from the Jack J. and Dorothy B. Spitzer Department of Social Work and Prof. Peter Myers from Grand Canyon University, Arizona, examine the nature and scope of this far-reaching problem. The book begins with an overview of illicit drug use and abuse, including their history and risk factors. The scope of illicit drug use in the United States is covered, including conditions that encourage the practice, costs, related policies and programs, and prevention and treatment considerations. The authors look at populations at risk, as well as international aspects of illicit drugs, such as production, trafficking and consumption.

Integrated Nanophotonic Devices
Zeno Zalevsky and Ibrahim Abdullaik
William Andrew, 2010
Nanophotonics is a field of science and technology based on the manipulation of light with miniscule structures, in the same way that computer chips are used to route and switch electrical signals. By enabling new high bandwidth and high speed optoelectronic components, nanophotonics has the potential to revolutionize the fields of telecommunications, computation and sensing. Nano-integrated photonic modulation devices and sensors are the components that will see nanophotonics moving out of the lab into a new generation of products and services. Prof. Ibrahim Abdullaik from the Unit of Ultra-Optics Engineering, together with Prof. Zeno Zalevsky from Bar Ilan University, explore one of the key technologies emerging within nanophotonics: that of nano-integrated photonic modulation devices and sensors.

Appiled Aspects of Optical Communication and LIDAR
Nathan Blaunstein, Shlomi Arnon, Arkadi Ziberman and Natan Kopeika
Auerbach Publications, 2010
Exploring the practical aspects of atmospheric optical communication and Light Detection And Ranging (LIDAR), the authors – Prof. Nathan Blaunstein of the Department of Communication Systems Engineering, and Professors Shlomi Arnon, Natan Kopeika and Arkadi Ziberman from the Department of Electrical and Computer Engineering – detail the role of atmospheric structures in propagation phenomena that influence the transmission of optical signals through perturbed atmospheric communication channels. The book examines numerous situations in over-the-terrain atmospheric communication channels, including the effects of natural phenomena and the corresponding features (broadening and (hydro)meteors) on optical ray propagation and also addresses line-of-sight as well as obstructive non-line-of-sight propagation conditions. The text also provides time-saving suggestions for determining which optical devices will work best for minimizing the deleterious effects of natural atmospheric phenomena.

Book of Sins
Nidaa Khoury
House of Netesh Publishers, 2010
This book of poetry by Dr. Nidaa Khoury from the Department of Hebrew Literature is presented in three parts: English, Hebrew and Arabic. Its release represents the first time Khoury’s writings is available to English audiences. Khoury is one of the few Arab women writers whose works are translated into English. The poems present centuries of humanity, its hopes and fears, sweat and tears, reaches and fragility. They question and defy boundaries – political, emotional and stylistic. Rays of light connecting readers in this hemisphere with the Middle East, the book is a “must read” for those who believe that to build a better future, we need to understand and respect the past and the present.

Self-Regulation: Brain, Cognition, and Development
Andrea Berger
American Psychological Association, 2011
Prof. Andrea Berger from the Department of Psychology explores the links between self-regulation and genetic predisposition, early experience and later adult functioning in society. Humans self-regulate whenever they adapt their emotions and actions to situational requirements according to internalized social standards and norms. Self-regulation encompasses skills such as paying attention, inhibiting reflexive actions and delaying gratification. People need self-regulation for navigating in the social world, academic life and indeed, in every aspect of life. While both environmental and genetic factors have direct, long-lasting influences on an individual’s ability to self-regulate, these factors also interact with each other in critical ways. While environmental factors such as parental attachment can shape the epigenetics and the expression of the individual genotype, gene variations may increase vulnerability to certain environmental pathogens.

Obesity in Pregnancy: A Comprehensive Guide
Eyal Sheiner (ed.)
Nova Science Publishers, 2010
Obesity is an ever-growing epidemic and a leading cause of morbidity and mortality in the Western world, with over two-thirds of the population above the age of 20 in the United States being considered overweight. The worldwide increase in the prevalence of overweight and obesity has affected specifically women of reproductive age. Maternal obesity represents a critical modifiable risk factor for adverse pregnancy outcomes with serious obstetric implications for both the mother and the fetus. Prof. Eyal Sheiner from the Faculty of Health Sciences and professor of Obstetrics and Gynecology at the Soroka University Medical Center examines how obstetric morbidities are associated with obesity. Specific attention is given to bariatric surgery and the outcome of subsequent pregnancies. Also discussed is how screening obese patients is one of the major challenges of sonographers and how it limits their ability to fully evaluate an individual’s condition and provide an accurate anatomic survey.
students making a difference

Tamar Miller

overcoming obstacles

Twenty-four-year-old Tamar Miller has not had an easy life. She credits much of her ability of surmounting obstacles to the example provided by her mother Yael, who is only 42. “When she was only 22 years old, my mother was alone and had to provide for me and my younger sister,” she explains. While her mother was working, Miller often looked after her younger sister, and while they often lacked basic necessities, there were decent schools in their neighborhood in Ashkelon, and Miller became a good student.

“Over the years, I continued taking care of my sister — taking her to kindergarten, making sure she had something to eat — while also taking care of myself and my schoolwork. I grew up really quickly while also taking care of myself and my sister — taking her to kindergarten, helping her with her schoolwork. I grew up really quickly and with a very strong sense of family responsibility. Meanwhile, my mother did the impossible: in addition to working, she studied for an undergraduate degree in English and education, and completed her degree with a grade of 93!” she recalls.

“When I was a child of about eleven I remember watching my mother sitting over her papers during the small hours of the night. I was so proud of her!”

Miller explains that her mother, who went on to teach English in the local school, never allowed herself or her children to feel sorry for themselves. “She always taught us to look at the half-full cup, to appreciate the things we had — like our health — and not to think that we lacked — like proper food and clothing. She taught us never to give up, to believe that we could succeed in life, and of course — to acquire a higher education.”

Miller had many friends in the neighborhood, and admits that she sometimes felt a tug at her heart to see their “regular” homes and families with “two parents and takeout pizza.” But she avoided feeling sorry for herself. “Instead,” she says, “I became driven to overcome obstacles, to succeed and to help others.”

Miller recalls that she had her first glimpse of Ben-Gurion University of the Negev at the age of sixteen. “It was love at first sight. I promised myself, ‘That’s the university I’m going to go to!’ That was my goal.” After graduating high school with a computer science major, she rose to the level of a Human Resources Officer during her army service. Then she worked in order to save up for college.

“Getting accepted to BGU’s Department of Industrial Engineering and Management was a major achievement. But Miller explains that she also had to work, and the load became unbearable. “I almost gave up my dream, and then I was privileged to receive a scholarship from the Moshal Scholarship Program. This support pays for my tuition and rent, and has made an enormous difference — now I am able to focus on my schoolwork.”

The Moshal Scholarship is given to highly motivated, low-income students with the hope that their university studies will help them find employment and improve their financial situations, and ultimately contribute to Israeli society.

Miller was also one of a lucky few who were selected to take part in a new, technological cutting-edge volunteer program called the Nachshon Project. The program offers low-cost, subsidized virtual tutoring in advanced mathematics and physics to middle and high school students living in the periphery. In Miller’s case, she tutors math online to two groups of three eleventh graders via a special computer program that comes equipped with study materials. She explains the material using a microphone and also answers questions. “I’ve actually never met my pupils face-to-face, but I am so proud of them — they did well on their matriculation exams and I feel as if I ‘really know’ them,” she says.

Miller gets much satisfaction from this volunteer work and has even created new study charts and materials on mathematics that she added to the Nachshon Project database.

Amit Puterkovski

a negev fan

Amit Puterkovski is a master of contradictions. Though he once considered becoming an engineer, he instead opted to study the two subjects he is most passionately interested in: psychology and Jewish thought — “For my soul,” he explains.

“During a long trip to South America after my army service, I decided I had two goals: to help others and to understand myself, my country and religion in depth. So I decided to follow my heart’s desire in my studies,” says Puterkovski. His ultimate goal is to advance to a combined master’s degree in business administration and management of non-profit organizations.

Puterkovski’s involvement in community service is impressive and long standing, but he says that it was his work during the 2005 disengagement from Gaza and Northern Samaria that really solidified his commitment.

“I helped found the organization Lev Echad (One Heart) Community Crisis Aid. We helped the families that were forced to leave their homes to cope with the trauma on a non-political, strictly personal level. Later on, Lev Echad assisted the Israeli home-front populations who were targeted during the Second Lebanon War and Operation Cast Lead.”

During his compulsory military service, Puterkovski became company commander and accompanied the same group of recruits for a full two years. “I tell them ‘my kids’ — I’m still in touch with them to this day, and even with some of their parents.” He received the Outstanding Soldier Award of his entire division in 2008. He spent two years working before he studied, but also found time to volunteer with Eln, an NGO dealing with youth at risk in Jerusalem.

His volunteer activities take up so much time, he admits that it is difficult to hold down a job in addition to studies and community service. “I was very grateful to be a recipient of the Lubner Prize for Community Service, made possible through the generosity of Vice-Chairman of the Board of Governors Bertram Lubner of South Africa. It allows me to continue my volunteer work with less financial stress.”

Today Puterkovski is a volunteer for the Paamonim organization, dedicated to helping Israeli families learn how to manage household finances and to budget themselves, in practice that means he mentors a family in financial difficulties and meets with the parents weekly. He volunteers for the program, which sends university students to teach classes in a local high school to strengthen their connection with, and commitment to, their country. In addition, he spends Wednesday nights with Jamila, a project under the aegis of the Drug Enforcement Agency, helping at-risk youth who hang out in a local park. He is also involved in the Simcha La’yid NGO for children with relatively rare genetic diseases such as juvenile diabetes and dysautonomia, and is logistics director for a six-day summer camp that hosts about 120 children who have widely different medical and nutritional needs.

If that wasn’t enough, Puterkovski has recently begun working in the BGU Student Association as a student involvement coordinator. “My job is to create a program to improve the atmosphere on campus even more, to heighten social consciousness and stress volunteerism.”

He admits that he’s become a Negev fan, a place he describes as “tackling the estrangement you find in the crowded center of the country.” The problem, he believes, is that the good salt-of-the-earth people in the Negev lack a sense of their own potential. “My dream is to show them what they are capable of, and work together to make a difference. If you want to march forward you must create a path for people to follow, to grow from the bottom-up, grass-roots level. For anyone who wants to influence and be influenced by others, anyone who wants to contribute to society and receive in return — the Negev is the ideal place to do it.”
students making a difference

Safa Abu Hani

"Since I was a little girl, I've known that I wanted to be a physician," explains Safa Abu Hani, 24, from the Bedouin city of Rahat, who is now a 6th year medical student at the Joyce and Irving Goldman Medical School. "There is a proverb in the Koran that 'whoever saves a single life, it is as if he saves the entire world'.” That exact saying appears in the Jewish Talmud as well.

It was not easy for Abu Hani to realize her dream of studying in medical school. The obstacles were numerous. First, she had to supplement her standard education to be able to qualify. "I studied in a local school in Rahat from kindergarten through 12th grade. I was a good student and enjoyed physics and electronics. Luckily I was able to attend a special pre-med preparatory lecture program on Fridays in Rahat called Nitzanim Refhui (Health Cadets) run by BGU’s Faculty of Health Sciences aimed mainly at the Bedouin population. As a result, I was fortunate to be accepted to medical school."

The next obstacle facing Abu Hani was familial. She needed her father's permission. "He tried to convince me to become a teacher – that's a popular study-track for Bedouin girls. But I was adamant; I had made up my mind whether to specialize in gynecology or family medicine. Abu Hani also volunteers in the “Perach” mentoring program with children ages 2-18 who are hospitalized at the Soroka Medical Center. She helps run the children’s playrooms scattered throughout the hospital wards (pediatric, pediatric oncology, etc.) and supervises the children’s play groups. She frequently serves as interpreter, providing both medical information and emotional support.

Abu Hani was one out of only 3 BGU recipients of the Daughters for Life Award created by Dr. Izzeldin Abuelaish in memory of his daughters who were killed in January 2009 when their home in Gaza was shelled in Operation Cast Lead. The awards are given to outstanding students for “demonstrated academic excellence, creativity, compassion, a developed sense of humanity, the overcoming of adversity, devotion to improving the circumstances of girls and women, and financial hardship.”

Abu Hani is an articulate, modest student at the Joyce and Irving Goldman Medical School.

“This medical school is community oriented and that appealed to me. For example, medical students talk to the patients in the very first semester not to treat them medically, but to discuss their feelings with them.”

However, there were additional obstacles, both scholastic and financial. “I studied a full year in the academic preparatory program to catch up on the biology and chemistry I had missed in high school. The scholastic level of our school system is lower than in regular Israeli schools, and I have to work hard to narrow the gaps. That’s also why I can’t work very much during my studies. I still have to study longer and harder than others in order to master the material. That’s just the way it is.” The last obstacle of all – financial – is still the most intractable.

“I received a number of scholarships over the years, from the Robert H. Arnow Center for Bedouin Studies and Development, as well as from the Office of the Dean of Students, and I am very grateful. Still, there is a shortfall.” To close that gap in part, on Fridays, Abu Hani teaches Rahat 9th graders about the human body.

During his first two years of university studies, Kanias volunteered in the Ayalim Student Village in the underprivileged Daedel neighborhood. He directed an Ayalim Association Youth Center counselor staff dealing with at-risk youth. “We had a group of about 15 high school drop-outs who basically hung around on the streets, looking for trouble. We mentored them and tried to give them tools for life.”

Although Kanias gained satisfaction from this and other forms of community work, he felt instinctively that his inclinations tended toward a more politically oriented sphere. “The turning point came with an inflated water bill that was sent from the new municipal water company. About three years ago, water services in Israel that used to be provided by local municipalities were privatized. In Beer-Sheva they are now provided by the Mei Sheva Corporation. Kanias discovered that his complaint was only one of many, and his detective work revealed many other disgruntled consumers.

“Many of us tried resolving our complaints through the corporation, and we even tried approaching the municipality, but nothing was done.” Eventually the problem received attention after a disabled senior citizen received an NIS 11,000 water bill. Although it was an egregious error, despite multiple attempts on his part, the mistake was not corrected. Kanias then took the struggle to Facebook. “We had no money to wage this battle, but I asked the 2,000 Beer-Sheva citizens who had filled out our Mei Sheva complaint form to print out flyers to put on Facebook. I asked each person to print out and put 20 flyers in their neighbors’ mailboxes. This way we were able to reach most of the city’s population on a budgeting budget and connect with people who don’t have Internet access.”

Kanias contacted the city’s mayor, the press and the office of the state comptroller (among others) with his grassroots struggle, thus leading to a public discourse of all the water corporations in the country – and the effects of unregulated privatization.

“We don’t say that privatization is bad. It’s lack of regulation that’s the problem,” explains Kanias. “I learned a great deal from this one issue.

“The lesson to be learned,” he believes, “is not only about water services, but about the nature of our civil servants, the functioning of our democracy. So many Israelis have a fatalistic, apathetic view that nothing can be done, but I don’t agree. A community of aware citizens – a civil society – is crucial to ensure the basic rights of citizens and the proper functioning of elected officials. I have a message for everyone: that we all deserve better and we can live better if we work together. We are still a young country, and there’s a lot to do to create just laws and regulations. We can beat the cross political, religious and ethnic boundaries to unite us all.”

Kanias, a recipient of the 2011 Lubner Prize for Community Service, is poised to establish a movement based on the civil society concept in order to promote quality of life in Israel. “We have created a practical, multi-dimensional model for creating a civil society or lobby group to change the face of Israeli society,” he proclaims.

Thus Kanias had found his mission.
Maayan Arbiv is not deterred by the fact that most people are surprised by her unusual decision to study nuclear engineering. “People tend to instinctively move away from me and exclaim, ‘Are you worried about radioactivity?’” and I say, ‘No, radioactivity is everywhere!’” In our studies we are careful to wear protective suits and take protective measures even though the radioactivity levels we are exposed to over a long time period are still much lower than a person might be exposed to on a routine airplane flight.

Although Arbiv is only in her second year, she knows that she wants to continue on to a master’s degree in the field of nuclear energy. “Despite the nuclear-power setbacks we’ve seen this past year in Japan’s Fukushima reactors,” she says, “I believe that alternative sources of energy are critical on a national as well as international level. Of course, we do have to learn our lessons from Fukushima to make nuclear energy even safer.”

Arbiv is very concerned about environmental pollution and believes in the use of nuclear power plants to produce electricity. The study of nuclear energy on the master’s level also deals with alternative energy sources such as sun and wind-powered energy. Arbiv is intrigued by the hydrogen fuel cell automobile research field. Such a vehicle would convert the chemical energy of hydrogen to mechanical energy. A hydrogen automobile would not contribute to carbon dioxide emissions, thus lowering air pollution.

But, Arbiv is no reclusive ivory tower scholar. She has been active for the last two years in the Open Apartments Program as part of the Community Action Unit. “This year I operate an afternoon youth center in a shelter for children in disadvantaged neighborhoods, with about 10-15 children.” Together with another student-mentor I help them with their homework, organize activities such as crafts projects, plays, even cleaning up the neighborhood! These are difficult children but I’m crazy about them and they know it. They’ve become like real siblings – they come to tell me their problems.”

Arbiv’s relationship with the children is so strong that she makes special efforts to travel from her home in Ashkelon to visit them during her summer break. She has also become very close with her fellow Open Apartment student staffers in Beer-Shava’s Gimmel neighborhood.

In addition, she mentors an adoptive family in financial distress – a young couple with six children, as part of the Open Apartments project. “I have many conversations with the parents about prioritizing monetary expenditures and budgeting. For example, they might buy expensive Purim costumes for each of their six children and are then left without money for food. I was one of six children when my father passed away. I learned the importance of budgeting and avoiding impulse purchases from my mother, who was forced to support the family on her own.”

Arbiv is a recipient of an ISEF Foundation scholarship that is granted to students with real leadership potential. As part of the program, she works with two 12th grade girls. “I tutor them and help them prepare for the matriculation exams in all the subjects in which they need help. We also have long conversations and they ask me a lot of questions about army service; I served as a Budgets and Maintenance Officer in the Air Force. But mainly I try to instill in them the drive to acquire a higher education.”

Arbiv was forced to support the family on her own because even as a child Arbiv could not rely on financial help from his family, he believes that “I matured more quickly, with a more reasoned, prudent outlook on life than other kids my own age. In high school I worked to earn pocket money. I learned to think ahead and plan for a career in which I could support myself! He worked for several years in the regular army after his compulsory service, but admits that he wasn’t able to save up much for university studies because he had to help out at home.”

It was the Moshal Scholarship Program that came to Afgin’s rescue. The program supports low-income but highly motivated students to complete their university education with qualifications that will enable them to fulfill their dreams of economic freedom. This scholarship enables Afgin to pay tuition and rent while devoting himself to his studies. In exchange, he does community service, as mandated by the scholarship. “I thank the Moshal Program for enabling me to do volunteer work in the Birz Sovra program,” he says.

This program runs two projects: a restaurant facility serving 250 people every day for the nominal price of one shekel, and an after-school enrichment center with middle and high school children from disadvantaged backgrounds. Afgin spends most of his volunteer time in the latter program, Birz Sovra’s Enrichment Center, where he mentors 14-16 year olds who come there straight from school. There they eat a hot lunch, do their homework and take part in activities until the evening hours when they go home.

“We are supposed to tutor these children, many of whom have problems with reading easy texts and solving simple arithmetic exercises. The problem is in convincing them to show up on a regular basis. So I first worked on developing a personal relationship with them, and afterwards was able to focus on tutoring.”

In addition, Afgin and other volunteers organize various activities for the afternoon hours. “We emphasize social skills with discussions about current events and their upcoming army service and sports. During their school vacations we take them on trips and hikes to broaden their horizons. I get tremendous satisfaction from my mentoring, and I continue to invent many more hours in these kids beyond the requirements. I’m just gratified to see how much they have progressed.”

Afgin explains why he chose BGU: “There is no other university in Israel with the kind of student body cohesiveness and positive atmosphere that you find at BGU,” he explains. “Here, we don’t just sit in class together and then go home. Here, we’re together after school hours to study together, to meet one another. Those of us who don’t live in the student dorms tend to rent apartments surrounding the University. “It’s the Friday night scene on Rager Boulevard that really typifies BGU,” he says. “Walk down there on any given Friday night and you’ll see that it’s full of smiling students walking in both directions, carrying steaming pots of food and chairs.”

Why pots and chairs? “It’s a BGU student tradition to get together for the Friday night meal in our tiny apartments; you either host guests or are invited out. If you’re invited out, then you bring a pot of food to contribute to the meal, and a chair so you’ll have somewhere to sit. If you’re the host, you’ll find that some of your guests are friends of friends you’ve never met before. That’s BGU!”
That peak tells you that something new has formed. It’s a picture you see – a straight line, then a peak.

Prof. Ashraf Brik

(T was that two Israeli scientists had won the Nobel Prize in Chemistry for their work in this area,” says organic chemist Prof. Ashraf Brik, referring to Profs. Aaron Ciechanover and Avram Hershko, who won the 2004 prize with American Prof. Irwin Rose. Now Brik, a member of the Department of Chemistry, the National Institute for Biotechnology in the Negev and the Edmond J. Safra Center for the Design and Engineering of Functional Biopolymers in the Negev, is carrying on the work, whose ultimate purpose is to better understand certain cancers, diseases of the immune system and Parkinson’s disease, where ubiquitin could play an important role.

What Brik and his assistants did discover was a new method of chemically synthesizing ubiquitinated proteins, which is invaluable to the study of these diseases. The breakthrough came in 2009, he explains modestly.

“It’s something we actually saw happening in front of our eyes; we could follow the chemical reactions. We mixed elements together and observed the reactions using our analytical tools – a system known as HPLC – high performance liquid chromatography – coupled with mass spectrometry. These basically gave us the molecular mass so we knew what the molecule being created was composed of. It’s a picture you see – a straight line, then a peak. That peak tells you that something new has formed and the mass spectrometer tells you the molecular weight of that peak. And the weight was the number we were looking for. How did we react when we saw it? We said, ‘Wow, it’s happening!’ The chemical reaction we were hoping to see is working!’ says Brik, noting that he was aided in his work by Ajish Kumar, a talented post-doctoral student from India.

At that point, Brik and his colleague knew what they had found, but they still had to tell the scientific world. The next step was to publish the results.

“We published the first paper on our experiments in Angewandte Chemie, the leading international journal of chemistry. Then we went on and published two more papers in the same journal – one that was related to understanding the effect of ubiquitination in Parkinson’s disease, and this year another paper showing how we synthesized all seven ubiquitin chains. We’ve just had another paper accepted for publication, which also deals with the synthesis of more complicated ubiquitin chains. All four of these papers received a lot of attention from the scientific community and were written up in Chemical Engineering News and the bulletin of the American Chemical Society.

As recently as 10-15 years ago, Brik explains, the idea of chemists creating molecules for the study of disease, which is a biological process, was still suspect – it was the purview of biologists. The biologist either extracted the protein or expressed it in a bacterium or another organism, or host, by various molecular biology techniques.

“That was the state of the art at the time,” says Brik.

“But since then, a new field has emerged where chemists are starting to chemically synthesize these molecules, one building block at a time, in the right order, and you end up with these molecular structures. The beauty of the chemical approach is that you can chemically introduce modifications on the real molecular structure that allows you to study these proteins in a different way than the biologists are able to do.”

When proteins in the cell don’t function properly, or when they become degraded, disease develops. “So we need to study these proteins, study their function, their structure, how they carry out their function, but to study these proteins we have to have the proteins in hand.” This is where Brik’s research comes in.

“When you take a protein called ubiquitin and join it to a certain other kind of protein, the resulting molecule gives a signal for protein degradation, which is the essence of disease.”

Ciechanover, Hershko and Rose won their Nobel Prize for discovering the nature of one of the ubiquitin molecules, but there are at least seven of them, and scientists have been limited in their study of these molecules because they could not create them in the lab, even though they knew they existed in the cell and have important functions,” explains Brik. “So what we did in my lab was to show that we can make all seven ubiquitin molecules by introducing advanced chemical methods, which allow cancer, Parkinson’s and immune disease researchers to study these molecules in all aspects. Ultimately, this research will advance the search for drugs to combat these diseases.”

Brik, 37, lives in Beer-Sheva with his wife Sawsan and their son Jude. He received his bachelor’s degree at BGU and his master’s at the Technion - Israel Institute of Technology, after which he pursued his doctoral studies at the Technion and San Diego’s Scripps Institute, where he also did his post-doctoral work.

Despite being aware of the acclaim that research in ubiquitination has gained his colleagues Ciechanover and Hershko, the Nobel Prize is not what keeps Brik at work. “My motivation is to push the ball forward, to advance knowledge and science for the sake of improving life.”

That breakthrough he and his colleagues saw in the lab in 2009 wasn’t the end, but rather the beginning of Brik’s path. “We’ve got another 20 years of work ahead of us,” he says. “The most exciting thing is that you never know where it’s going to end up.”
In 2008, Bareli received the Itzhak Ben-Zvi Prize for the History of the Land of Israel for his book, *The Struggle Over Political Institutionalization in Mandate Israel, 1948-1953*. More recently, he and Dr. Nir Kedar published *Mamlakhtiyut Yisra'elit (Israeli Republicanism)* (2013), which analyzes Israel’s version of modern republicanism in the context of the nation’s political history and present-day political challenges. The book, which, “begins with the 1920s and ends with the problems of Israeli capitalism today,” serves as a bridge between Bareli’s earlier scholarship on political controversy and his present work on socio-economic policies and the Israeli political process.

Bareli’s academic interests stem from multiple origins, including his early academic experience at Tel Aviv University and the Hebrew University of Jerusalem, where he received his bachelor’s and master’s degrees in philosophy respectively. Nowhere more evident are the roots of his interests, however, than in his family history. Bareli’s Lithuanian-born father immigrated at the age of four with his family in 1926. His grandfather, later the director of Bank Hapoalim, and father, a journalist, were active members in the Labor Zionist movement throughout their whole lives. His mother immigrated to Israel from Romania during World War II. During his years as a graduate student, Bareli researched Labor Party documents of 1947-1948, including the memoirs of David Ben-Gurion. In 1995, along with colleague Pinhas Ginossar, he established the first periodical of Israel studies in Israel. At the same time, Bareli says, he and Ginossar were working on “one of the most important publications that reflect the post-Zionist debate.” The book, titled *Zionism: A Contemporary Debate*, was published in Hebrew and presented the most prevalent topics related to Zionism from academic institutions throughout Israel.

Knowledge of Israel’s past is key, Bareli says, to making decisions in the present: “You can’t begin to address Israel’s misfortunes and achievements without understanding the roots of Israeli society. Israel is a very young project, and like every project it has its content and the reasons that have kept it going. If you don’t have enlightened, historical information, you cannot understand the most basic parameters of the Israeli-Palestinian conflict, for example, nor can you understand the diversity of Israel as an immigrant culture without looking into the phenomenon of immigration to this country from places all over the globe,” he explains.

Bareli’s work is primarily done in Sede Boqer, a place he says, “that brings together the best of academic research and cultural history in one beautiful atmosphere. Sede Boqer is a wonderful place for research,” he continues. “It’s quiet and has great facilities.” Hosting over 150 undergraduate students from BGU alone, the Institute is currently enrolling both Israeli and international graduate students from various countries to obtain their master’s and doctoral degrees in the new Israel Studies International Program (ISIP). “We want to educate new scholars in Israel studies in the broadest sense of Jewish awareness in the last century,” he explains. The program, directed by Dr. Paula Kabalo, has already started to grow.

A current project coming out of the Institute is an annual journal of scholarly articles related to all things Israeli titled *Yisroelim Bitkumat Israel (Studies in Zionism, the Yishuv and the State of Israel)*. Founded and first edited by Pinhas Ginossar in 1991, Bareli is currently co-editor of the multidisciplinary periodical along with Dr. Gideon Katz and Dr. Ofer Shiff. The journal, Bareli says, serves several purposes: “We want it to express the achievements in Israel studies, as well as to initiate debates and foster fields of study that are perhaps not fostered enough. We also want to help young scholars publish their first articles.”

Such a comprehensive approach to the study of Israel and modern Judaism works, he says, “because Israel is itself a comprehensive phenomenon. If you want to make a periodical of Israel studies, there’s not much of a choice except to take the broadest approach.”

Bareli has brought a good deal of change to the conception of Israeli culture and history. Between the increasing success of the Institute’s journals, the expanding student body on the Sede Boqer campus and the growing number of educational opportunities offered by the Institute, Bareli can be found right in the middle of it all, teaching, researching and documenting the roots of the nation.
Dr. Ronit Bitton

D r. Ronit Bitton from the Department of Chemical Engineering enjoys being part of the scientific process. Whereas other researchers in the fields of bio-, chemical or materials engineering and nanotechnology are often motivated by the possibility of their work being put to further use beyond the laboratory, Bitton spends her research hours honing in on the smaller aspects of the scientific process. “I love correlating structures on many levels to properties and functions of materials,” she says. “I don’t want to go straight to the mechanical application of findings. I’d rather look at the mixing process of these materials and examine their properties and functions.”

Conducting research with some of the world’s leading scientists, Bitton’s work has had an impact in the fields of bio- and nanotechnology, chemical engineering and regenerative medicine. “My research is in biomaterials,” she says, “but from the material, not the bio side.”

A native of Herzliya who recently moved to Beer-Sheva, Bitton received her master’s degree in biochemistry at the Technion – Israel Institute of Technology. During her studies she collaborated with researchers at the University of California, Santa Barbara, to examine peptides and extract individual molecules from basic shapes. She explains: “We arranged peptides to mimic proteins in order to elicit a particular behaviour in the proteins, which would lead to the binding of molecules to DNA.” With this critical research, she and her fellow researchers “discovered why molecules are shaped in particular ways.”

Bitton’s doctoral research, also carried out at the Technion, focused on a different subject: tissue adhesive development. “A challenging aspect of developing new tissue adhesive is to create a material that can glue together wet surfaces,” she explains. “The success of synthetic glues in such an environment is so far very limited. During my Ph.D. studies, my colleagues and I studied adhesive materials formulated from natural materials extracted from the brown alga Fucus serratus. Adhesion tests have shown that the cross-linked phenolic polymers could become useful adhesives, capable of adhering to a variety of surfaces.”

Though the average person may consider staples and sutures as the primary means of bonding tissue, Bitton addressed the problem that “most of the adhesives used do not work when in contact with water. However, if we consider certain creatures living in the sea, we see that they stick to everything.” She is referring to the immense amount of time and money spent on cleaning the “goo” off of Navy ships. “The knowledge the group gained from examining natural adhesives led to the construction of a synthetic adhesive that works in the same manner.”

By learning about the bio-oriented system of natural adhesives,” she says, “we could mimic the model.”

Motivated by her interest in biomaterials, Bitton worked as a post-doctoral fellow with a biomaterials group at Northwestern University’s prestigious Stupp Laboratory. She travelled to Evanston, Illinois with the goal of creating gels to be used in bioactivity and tissue engineering, as well as in tissue function restoration. As a result of the intensive research conducted there, she once again understood that her real passion was in the materials, and not necessarily medical applications. “It’s always interesting to discover things along the way. I realized that I’m obsessed with nanostructure. Instead of focusing on applications, I like to characterize all levels of structures, to see how they relate to one another.”

Bitton’s newest nanotechnology expert has brought with her an apt way of thinking that is crucial to all disciplines of scientific research and especially to nanoscience: it’s all in the details.
Victor Novack is a senior internist and head of the Clinical Research Center at the Soroka University Medical Center, right across the street from BGU’s Marcus Family Campus. His wife, Dr. Lena Novack, is an epidemiologist and biostatistician at the Faculty of Health Sciences’ Department of Epidemiology. They not only share a home in Omer with their three children, but also, occasionally, they share the workload.

“When Victor needs somewhat complicated statistics for his studies, he asks me to do it,” says Lena. Each of them is working on their own “extraordinary project.” Victor, 40, is setting up a Clinical Research Center at Soroka modeled on the one at Harvard University where he worked for three years and with which he is still affiliated. Lena, 36, is the statistician on a project to determine the correlation between the toxic waste stored at the Negev’s Ramat Hovav industrial zone and birth defects in Bedouin babies living in the vicinity.

Victor and Lena both came from Russia during the great aliyah of the early 1990s. “We worked together at Harvard; we trained in a similar fashion. And it helps to be able to talk about our work now over the dinner table,” he says.

The aim of the Clinical Research Center, says Victor, is to establish “a one-stop shop for medical researchers and private industry to set up their clinical studies, which, of course, are the make-or-break phase for any medical advancement.” The Center has received NIS 4.5 million in Israeli, U.S. and European grants over the last year-and-a-half – an indication of the importance attached to the project.

“Our staff helps researchers write the proposal for their clinical studies, prepare grant proposals and submit the regulatory paperwork, and then helps them enroll the patients in the trial and gather the data,” Victor explains. “The entire infrastructure for conducting clinical trials is accessible at the Center. We offer guidance and support to any researcher who needs it – and basically all of them do.” We have initiated or supported more than 150 studies and have had 15 publications just within the last 18 months, he adds.

Prior to the Center’s creation, Victor continues, “A physician would have a great idea for a new medicine or procedure or clinical study, and he’d say, ‘Let’s conduct a study to see how to develop it,’ but he didn’t know where to start, whom to approach, what sort of assistance he needed, how he could gather the data or how to write up the results. At Soroka, the physicians were overwhelmed by their clinical duties; they rarely had the time, money or wherewithal to pursue academic endeavors. It was too daunting. But that’s all changed now.”

Not long after arriving in Israel, Victor studied at BGU’s Joyce and Irving Goldman Medical School before enlisting in the army, where he was able to finish his Ph.D. in Epidemiology. After the army, he began his residency at Soroka. “After my residency, I decided that my career path lay in establishing a clinical research service at Soroka, so I left for Harvard on a six-month fellowship, but it grew from there. I was the medical director of a trial design group at Harvard Clinical Research Institute that provides clinical research support to industry in the area. This facility developed into a huge multinational center for trials of new devices, especially in cardiovascular research.”

During the last years of Novack’s stint at the Harvard Institute, he set up more than 40 trial designs. “My part was to design the trials, which grew out of negotiations with the Food and Drug Administration and industry, the purpose being to ensure that the proposed studies were acceptable.”
We are hoping to determine to what extent these illnesses are the result of environmental exposure, beyond possible genetic factors.

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All science is based on statistics now,” says Lena, noting that epidemiology lends itself naturally to statistical research. “My master’s degree in biostatistics (from the Hebrew University of Jerusalem) is of great use to the Department of Epidemiology,” she notes.

And so it is of great use to the project she is just beginning as principal investigator at Ramat Hovav, together with researchers from the delivery and neonatal units and the cytogenetic laboratory at Soroka, the Faculty of Health Sciences’ Department of Epidemiology, and the Unit of Environmental Engineering in the Faculty of Engineering Sciences. “I am going to be responsible for measuring the results of the testing.”

Her team has begun to study the exposure of pregnant Bedouin women to the toxic waste emissions from Ramat Hovav. “We are looking at the major congenital malformations at delivery,” she says, noting that the study is being conducted with a grant from the Office of the Chief Scientist in the Ministry of Health.

“When it comes to being very interested examining the epidemiological reasons for incidences of birth defects. In the end we are hoping to determine to what extent these illnesses are the result of environmental exposure, beyond possible genetic factors. We are working with specialists in biotechnology to measure the emissions, to map the extent of the exposure in the population, Dr. Lena Novack

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we’re going to take pregnant women living within the exposure area and do blood tests from the umbilical cord, do cytogenetic testing on that, and finally see if the exposure to toxic waste emissions from Ramat Hovav has had any effect on the newborns,” she says, noting that in all the testing done on the effects of Ramat Hovav on the surrounding population, no one has ever tried to measure its exposure on the individual level.

Novack notes that a previous study carried out by BGU researchers found that birth defects occurred more frequently in babies born to Bedouin women who lived in very close proximity to the toxic waste site, and this could not be explained entirely by genetic predisposition. “In all probability, living in the vicinity of Ramat Hovav could not be explained entirely by genetic predisposition. We are looking at the major congenital malformations at delivery,” she says, noting that the connection between the Novacks’ work is natural, explains Lena. “When you start a clinical study, statistics are critical to the whole design. You need to reach conclusions – you can run a three-year trial administering drugs to patients, but you have to measure the results statistically to actually know whether the drug works,” she adds.

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were scientifically sound. These are very intense, elaborate, time-consuming trials; most of them are still running,” he says.

But once he’d gotten that experience under his belt, he “decided that the time had come to return to Israel and put that experience to use in establishing the Clini- cal Research Center at Soroka.”

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