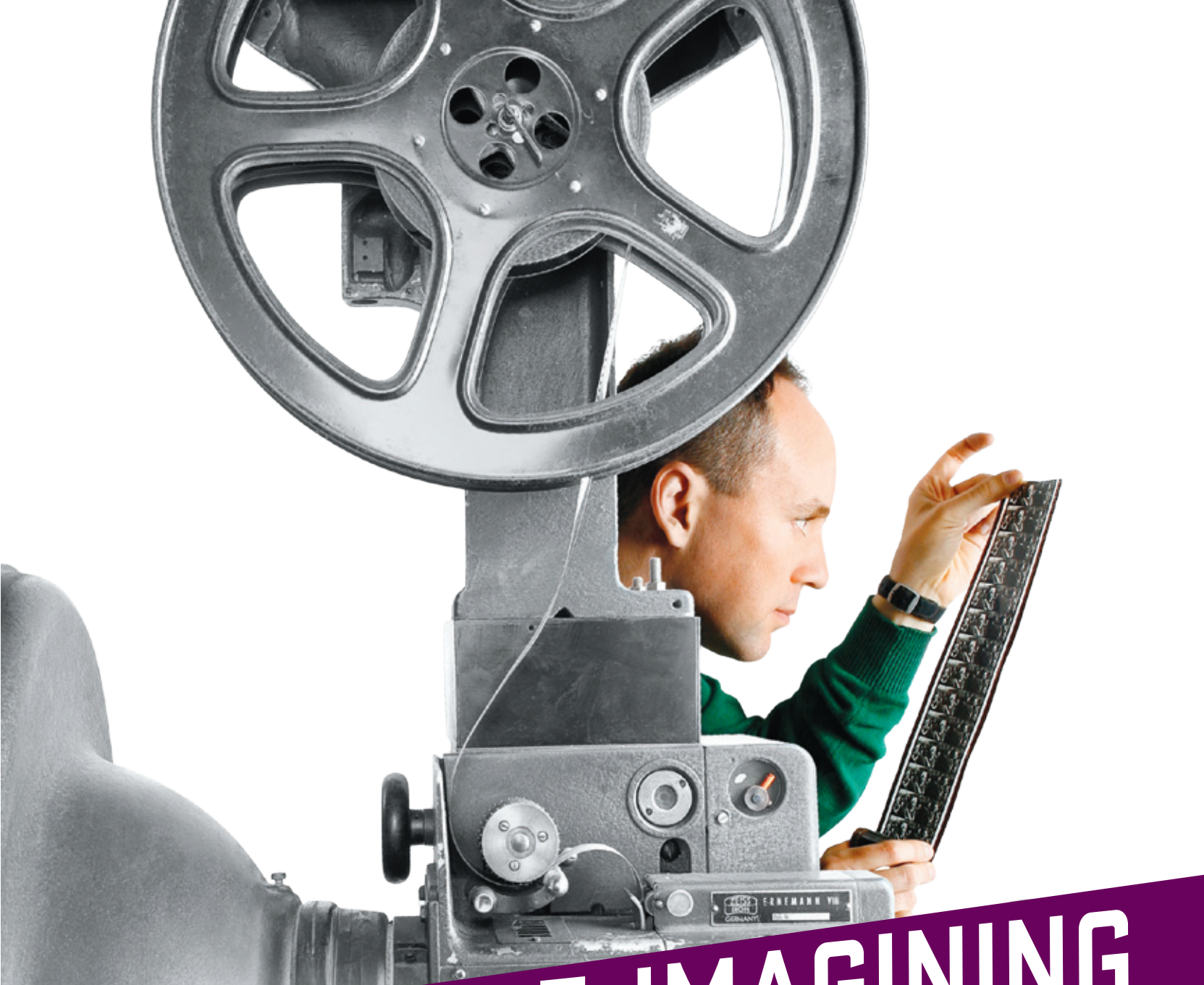


RE-IMAGINING THE MIND

INTERDISCIPLINARY BRAIN STUDIES

TEL AVIV UNIVERSITY
2012 ANNUAL REPORT

TRANSCENDING THE OBVIOUS, BUSTING MYTHS
AND INTEGRATING DIVERSE RESEARCH FIELDS,
A NEW GENERATION OF NEUROSCIENTISTS
AT TEL AVIV UNIVERSITY SEEKS

MULTIFACETED ANSWERS TO COMPLEX QUESTIONS

THAT AFFECT OUR LIVES.

2012 ANNUAL REPORT

CONTENTS

Containing over 100 billion nerve cells connected to one another at over a trillion points, the human brain continues to amaze and inspire new generations of young scientists. The recently dedicated Sagol School of Neuroscience offers

CHAIRMAN'S MESSAGE

In my message last year, I wrote that no vision for the future of Tel Aviv University is beyond its capabilities so long as it has the support of its Board of Governors, its friends and its alumni.

I think the University and its supporters have much to be proud of. Tel Aviv University plays an integral part in building the State and in making Israel a world center for creative thinking. A forward-looking society should embrace new research fields, enter into major international collaborations, train educators, bring learning and enrichment to its children, and instill a sense of social responsibility. The faculty, students and graduates of Tel Aviv University are leading the way in all these areas.

Now the challenge is to raise the resources needed for continued world-class accomplishment. Our recent efforts to consolidate and reinvigorate the University leadership have borne fruit. Together, TAU's supporters can play a vital role in developing new areas in science, technology and the humanities that will keep Israel in the top echelon of knowledge-powered nations.

"Tel Aviv University plays an integral part in making Israel a world center for creative thinking."

HARVEY M. KRUEGER
Chairman, Board of Governors

PRESIDENT'S MESSAGE

Walking through the campus these days, I feel energized and inspired by the visible surge of growth. Earth is being moved and foundations dug for new multi-story buildings; advanced equipment is being installed in new labs; and the new Science Promenade is rapidly being carved from the campus's eastern hillside. Four more buildings are in the planning or negotiation stages.

This physical growth is paralleled by academic expansion. We recruited 65 new faculty members, up from 50 in 2011 and 34 in 2010. The total student body exceeded 30,000 for the first time in a decade. Together with opening two major interdisciplinary frameworks, the Sagol School of Neuroscience and the Renewable Energy Center, the University has launched a multi-field Mediterranean Studies initiative. Tel Aviv University was the only institution in Israel to win a leading or senior partnership in five national centers of excellence - in computer science, genomic medicine, cognitive science, renewable energy and nano-medicine. And with the help of foundation and private funding, we launched or dedicated some 50 new projects this year.

Growth for its own sake has little meaning; what is important is to develop areas where we can have the most impact. Thanks to the immense dedication of our faculty and students, our alumni and our supporters around the world, Tel Aviv University is continuing to build on its strengths and increase its contribution to society.

PROF. JOSEPH KLAFTER
President, Tel Aviv University

research opportunities for curious and driven students at over 70 laboratories in seven faculties. The Sagol School is the first and only one in the country to offer BSc, MSc and PhD degrees under one interdisciplinary roof . Home to Israel's

IS OUR FREE WILL REALLY FREE?

MYTHBUSTER

PROF. YANIV ASSAF
Department of Neurobiology,
George S. Wise Faculty
of Life Sciences

Equipped with a background in medicine, computer science, biology, psychology and philosophy, PhD student Omri Perez is asking a provocative question: Are all decisions biologically predetermined? Perez seeks to understand what happens in the brain before we make a conscious decision. Essentially, he is theorizing that our preconscious self decides before our conscious self, a notion that challenges our traditional conception of free will.

By monitoring volunteer subjects' brain waves using electrodes, a process known as electrocorticography (ECoG), at the TAU-affiliated Tel Aviv Sourasky Medical Center, Perez is able to "see" a person's neural activity before he makes a decision.

His findings, initially very promising, could herald the development of brain-computer interfaces for patients with locked-in syndrome, a severe neurological condition affecting a person's ability to move and communicate. Perez speculates, "If we can understand what people want before they act, we could potentially predict or manipulate these choices beforehand."

Omri Perez, recipient of the Excellence in Converging Technologies Scholarship of the Council for Higher Education, works in collaboration with Prof. Yehezkel Yeshurun of the Blavatnik School of Computer Science, Raymond and Beverly Sackler Faculty of Exact Sciences, and Prof. Yitzhak Fried, a neurosurgeon at the Sackler Faculty of Medicine.

OMRI PEREZ, 29
> Interdisciplinary Doctoral Program in Neuroscience for Outstanding Students
> Sagol School of Neuroscience

most competitive doctoral program in neuroscience, the Sagol School accepts only the most accomplished PhD candidates and supports their original research ideas. The rigorous BSc program in biology and psychology combines neurology,

CAN CULTURE LITERALLY SHAPE OUR BRAIN?

MYTHBUSTER

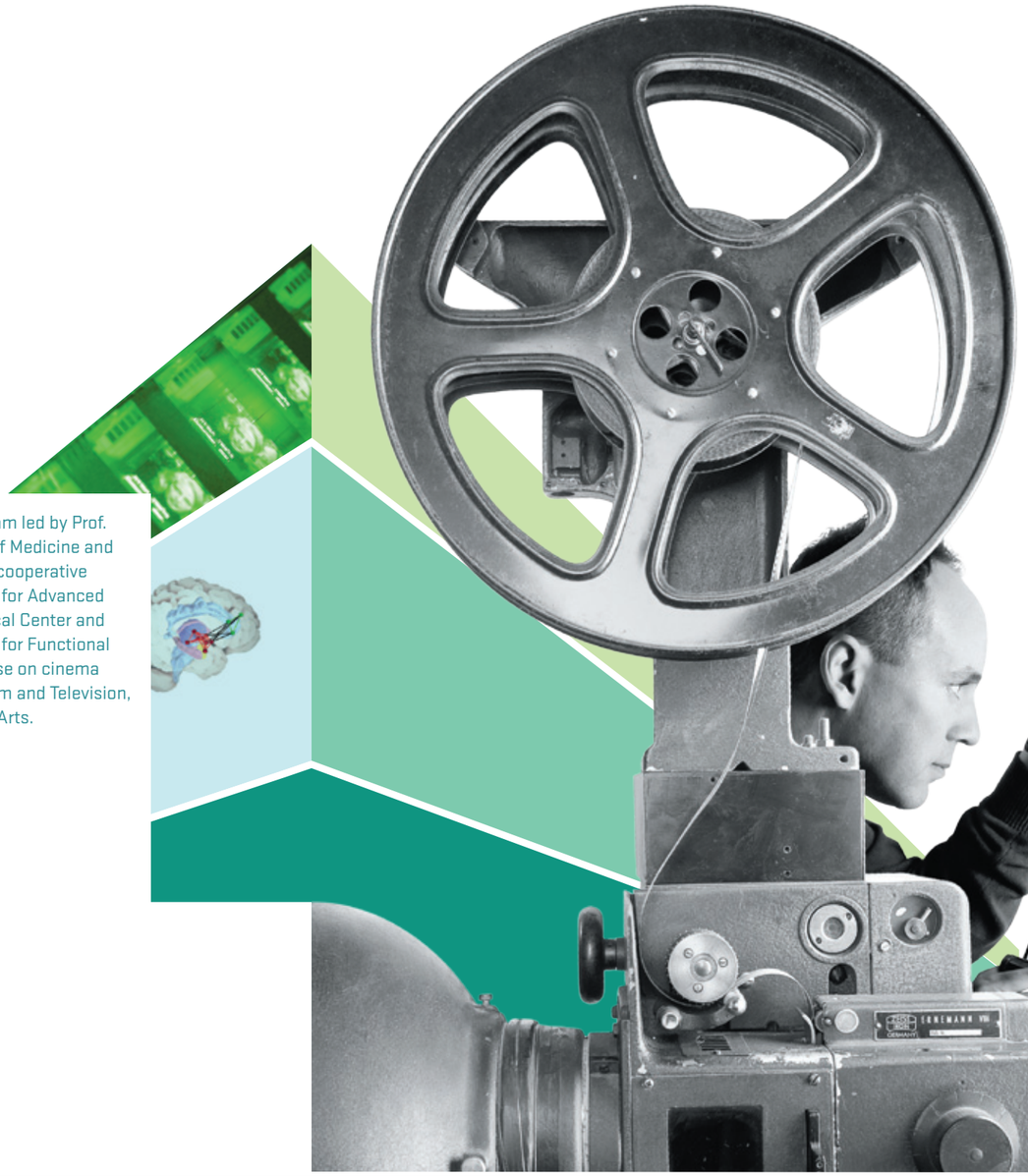
PROF. INA WEINER
School of Psychological Sciences

Anthropologists have long marveled at the curious behavior of the Utku, a small group of Eskimos who lack any conception of anger. Intrigued by this evidence of how culture shapes our emotional states, doctoral student Gal Raz is combining his interests in medicine and film to investigate the impact of culture and upbringing on the brain.

Employing fMRI technology to map the neural activity of people watching films, he studies how patterns of connectivity in the brain dynamically change during intense emotions such as sadness, anger, joy and disgust. His technique is also used by fellow students to explore how people with a mental illness or disease, such as those with schizophrenia or Parkinson's, experience cinematic art in a different way.

Raz hopes that one day his research will lead to therapeutic films based on principles of neuroscience for patients suffering from post-traumatic stress disorder (PTSD) or depression. His studies also have broad implications for better understanding the relationship between mental disorders and the functioning of specific regions in the brain and could help explain significant variations in behavior among individuals and communities.

Gal Raz works as part of a research team led by Prof. Talma Hendler of the Sackler Faculty of Medicine and the Tel Aviv Functional Brain Center, a cooperative brain imaging lab of the Wohl Institute for Advanced Imaging at the Tel Aviv Sourasky Medical Center and TAU's Levie-Edersheim-Gitter Institute for Functional Brain Imaging. He also teaches a course on cinema and emotions at the Department of Film and Television, Yolanda and David Katz Faculty of the Arts.



GAL RAZ, 36
Dan David Scholarship recipient

neurobiology, psychology and computational neuroscience. Next year, a special program combining biology and linguistics will open for outstanding undergraduate students. Brain studies at TAU are augmented by the new, expanded School

HOW DO WE PROCESS FEAR DIFFERENTLY?

MYTHBUSTER

PROF. DAPHNA JOEL
School of Psychological Sciences

It seems logical that highly anxious people would be quicker to spot fear in others and would be acutely aware of their surroundings. PhD candidate Tahl Frenkel decided to test this assumption, using EEG technology, to see if our brain and behavior always tell the same story.

As part of a study on how the brain processes fear among anxious and non-anxious people, she presented each group with a set of pictures featuring a person's face looking progressively more frightened. She then calculated the precise moment when the two groups identified fear. Frenkel found that while anxious people seemed quicker to respond to fear in the subject's face, EEG data did not support this observation. The brain waves showed they were actually less sensitive than non-anxious people to subtle changes in facial expressions. Frenkel theorizes that anxious people could be lacking in their threat evaluation capability, which is necessary for effective decision-making and managing fear. Anxious individuals may therefore compensate for this deficit by reacting more strongly to a supposed threat.

Her study highlights how advanced brain technologies are transforming the field of psychology. It is now possible to see up-close the neurophysiological correlates of anxiety as well as better understand the complex mechanisms underlying our behavior.

Tahl Frenkel is supervised by Prof. Yair Bar-Haim, Head of the School of Psychological Sciences, Gershon H. Gordon Faculty of Social Sciences, and conducts research at the Adler Center for Research in Child Development and Psychopathology.

TAHL FRENKEL, 33

- Recipient of a TAU Distinction Award for excellent graduate work
- Received a post-doctoral fellowship at the University of Maryland

of Psychological Sciences, which ranks among the top psychology departments in the world. Teaching activities go hand-in-hand with research at the Adams Super-Center for Brain Studies, established in 1993 to promote collaboration

WHAT MAKES BRAIN TRAFFIC STOP OR GO?

MYTHBUSTER

PROF. INNA SLUTSKY
Department of Physiology and Pharmacology, Sackler Faculty of Medicine

One of the hallmarks of neurodegenerative disease is when neurons can no longer communicate with one another and simply stop functioning. Recent breakthroughs at TAU show that glia cells, special cells long thought to be just the "glue" holding neurons together, in fact play a fundamental role in ensuring healthy communication. Serving as the brain's traffic lights, they control the transfer of information between nerve cells and may provide important clues as to why brain signals stop, go, or eventually fail.

As part of a large collaborative initiative, two students from different disciplines are combining their expertise in order to build a comprehensive picture of the function of glia cells and their role in the onset and progression of disease.

Approaching glia from a theoretical perspective, engineering PhD student Maurizio De Pittà is developing the first computer model of groups of glia and the brain signals between them. This computer model could potentially be implemented in microchips and computer software that mimic brain networks and may shed new light on Alzheimer's disease, epilepsy and other brain disorders.

Master's student Leenoy Meshulam takes a more applied approach. Combining her background in physics, biology and nanoscience, Meshulam uses optical imaging technology to record neurons and glia cells in the brain's cerebellum. Her current study focuses on changes in glia activity caused by ataxia telangiectasia (AT), a fatal neurodegenerative disease. In the future, she hopes to contribute to innovative solutions to repair damaged DNA in AT and cancer patients.

The students' work is part of an interdisciplinary study led by Prof. Eshel Ben-Jacob of the Raymond and Beverly Sackler School of Physics and Astronomy, Raymond and Beverly Sackler Faculty of Exact Sciences, incumbent of the Alex Maguy Chair in Physics of Complex Systems; Prof. Ari Barzilai of the Department of Neurobiology, George S. Wise Faculty of Life Sciences; and Prof. Yael Hanein of the Iby and Aladar Fleischman Faculty of Engineering, co-director of the Center for Nanoscience and Nanotechnology.

MAURIZIO DE PITTÀ, 32
- School of Electrical Engineering
- Member of the Joint Italian-Israeli Neuroscience Lab

LEENOY MESHULAM, 24
- Adi Lautman Interdisciplinary Program for Outstanding Students
- Recipient of a PhD fellowship to Princeton University next year

across the disciplines as well as sponsor symposia and conferences. Researchers strive to quickly translate laboratory findings into effective drugs and treatments for neurological, neurodegenerative and psychiatric disorders. TAU has

IN WHAT WAY CAN DIET AID LEARNING?

About one in every ten children has dyslexia, a learning disorder that affects the ability to read and perform well in school. Yet, despite its prevalence, little is known about the brain development of dyslexic kids and what might cause this neural miswiring to begin with.

Doctoral student Aviv Spektor, specializing in neurolinguistics, sought to test a possible link between diet and the development of dyslexia, a previously unexplored subject: "I wanted to know if there was any special meaning behind the idiom, 'food for thought.'"

His research idea was sparked by a 2003 scandal in Israel when a baby formula importer mistakenly sold a milk product lacking in vitamin B1 (thiamine). As a result, three Israeli babies died and dozens of others suffered from severe damage. Those who survived were given vitamin B1 supplements, which led to an improvement in their condition.

While there is no direct connection between vitamin B1 and language acquisition, due to the central role of this supplement in brain development, Spektor theorized a possible link between vitamin B1 deficiency in newborns and the development of dyslexia later on. To check his hypothesis, he tested a group of healthy seven- and eight-year-old schoolchildren who consumed tainted formula during their first year as well as a control group of similar children who did not.

The results were unequivocal. Ninety-eight percent of the children who lacked vitamin B1 as babies later developed dyslexia while, in contrast, only 10% in the control group experienced reading difficulties. This study provides further evidence of the fundamental role of nutrition in childhood development and learning.

Aviv Spektor works with Prof. Naama Friedman at the Jaime and Joan Constantiner School of Education, Lester and Sally Entin Faculty of Humanities.

more drug candidates in the pipeline for Alzheimer's disease than any other university. The University won a senior partnership in the new Israel Center of Research Excellence in Cognitive Science as part of the I-CORE program to attract

AVIV SPEKTOR, 35
Recipient of a merit scholarship from Rotary International

HOW CAN WE GET SMARTER BY COPYING ANIMALS?

ORIT DASHEVSKY, 26
Research Program for Outstanding Students in Life Sciences

Fascinated by how bats can perfectly orient themselves in darkness and communicate with one another, undergraduate Orit Dashevsky has been conducting fMRI-based analysis of brain activity in order to understand, for the first time ever, how social behavior is encoded in bats. "Studying bats, which are among the world's most social mammals," explains Dashevsky, "could help us understand the origins of human behavior."

Dashevsky works closely with new young faculty recruit, Dr. Yossi Yovel, in an emerging field they call neuroecology. Dr. Yovel's team is establishing a bat colony to record the animals' communication and movement. However, this is not an easy task, since Yovel wants the bats to remain wild and be able to forage off campus. In order to research bats in a natural setting, his team has designed the smallest GPS devices in the world and miniature ultrasonic microphones—specifically developed for this purpose.

"We can learn a lot by studying animal behavior as it is driven by its natural environment," explains Dr. Yovel. For example, bats rely on echoes reflecting off nearby objects to "see" in the dark, a principle that could be incorporated into navigational techniques for the blind. The way bats communicate and detect objects through sound with super-high accuracy can also teach us a lot about sonar technologies. Researching bats, therefore, has vast implications, from protecting submarines to object recognition by robots to helping the blind "see."

Dr. Yossi Yovel is a member of the Department of Zoology, George S. Wise Faculty of Life Sciences.

Israel's most gifted young researchers back home from foreign universities. Over the last 5 years, Tel Aviv University has recruited 10 new faculty members in Brain Studies and plans to hire 10 more. Like a living brain itself, the brain studies program

GREAT MINDS THINK BRAIN TOGETHER

"I WANT TO KNOW
HOW
THE **HUMAN BRAIN**
UNDERSTANDS
AND PRODUCES
LANGUAGE."

Leenoy Meshulam
Nanoscience and Neurobiology

Maurizio De Pittà
Engineering and Physics

Aviv Spektor
Linguistics and Education

Tahl Frenkel
Psychology and Child Development

"I HOPE TO
SHED LIGHT
ON THE CAUSES OF
ALZHEIMER'S
DISEASE."

Neta Gazit
Physiology and Pharmacology

"I WANT TO KNOW
WHAT
PEOPLE DECIDE
BEFORE THEY KNOW IT."

Omri Perez
Computer Science and Cognitive Neuroscience

Gal Raz
Medicine and Arts

"WHEN I REALLY NEED TO
CONCENTRATE,
I PLACE MYSELF **UP-SIDE-DOWN**
LIKE A BAT."

Orit Dashevsky
Zoology and Biology

"IT IS FASCINATING
TO THINK
MY BRAIN AND YOURS
MAY BE DIFFERENT
BECAUSE OF
CULTURE."

at Tel Aviv University will generate ever more linkages between subject areas and generate new courses, degree programs and breakthroughs in emerging scientific fields.

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PROJECTS 2012

Young Faculty Recruitment

- William F. Cohen Business Faculty Recruitment Fund – USA
- Recruitment Fund for Outstanding Young Researchers – Latin America

Academic Development

- Thomas Arthur Arnold Excellence in History Fund – USA
- Renewed Support for David Berg Institute for Law and History – USA
- Yoda Leon Benoziyo Fund – Lichtenstein
- Alfred, Else and Hans Breitbarth Life Sciences Fund – Latin America
- Support for Institute for National Security Studies – Crown Family Foundation, USA
- Naomi Prawer Kadar International Yiddish Summer Program – Naomi Foundation, USA
- Kahanoff Retention Initiative for Israeli-Arab Students – Canada
- Support for President's Fund – Dr. h.c. Karl-Heinz Kipp, Germany
- Dr. Bernard Lewis Book Collection – USA
- Mr. and Mrs. Michael Lewis Book Collection – USA
- British Trust 2011 Living Legacy Fund – UK
- Miles S. Nadal Institute for Technological Entrepreneurship – Canada
- Marc Rich Foundation Scholarship and Special Courses Program in the Humanities and Arts – Switzerland
- Support for Institute for National Security Studies – Mr. and Mrs. Israel Roizman, USA
- Raymond and Beverly Sackler Harvard-Tel Aviv University Astronomy Initiative – USA
- Expansion of Raymond and Beverly Sackler Prize in the Physical Sciences – USA
- Edmond J. Safra Center for Bioinformatics – Lichtenstein
- Edmond J. Safra Center for Ethics – Lichtenstein
- Sagol School of Neuroscience – Israel
- Community Mental Health Rehabilitation Track in Occupational Therapy – Laszlo N. Tauber Family Foundation, Israel
- Support for Iranian Studies Program and Scholarships – UJA-Federation of Jewish Philanthropies of New York, USA

Research

- Zalman and Ayala Abramov Research Fund in Zionism and Israel Studies – Israel
- Alliance Research Fund for the Development of Novel Drugs for Alzheimer's Disease – UK
- Support for Breast Cancer Research – Breast Cancer Research Foundation, USA
- "Iron Age: Archaeology, Text and the Exact Sciences" Research Project – Chaim Katzman Foundation, USA
- Bruno Landesberg Chair for Green Chemistry – Israel
- Leon Tohar Medical Research Fund – Israel
- USAID-ASHA Center for AIDS and Infectious Diseases Project – USA
- Ovarian Cancer Research Fund in Memory of Dr. Otto Weinmann, Vienna – Dorit Knobel, Israel

Campus Development

- Refurbishment of the Gitter-Smolarz Library of Life Sciences and Medicine – Latin America
- Goldrich Family Foundation Project in Student City – USA
- Avram and Stella Goldstein-Goren Seminar Rooms – Cukier-Goldstein-Goren Foundation, Italy
- Dr. Habib Levy Collection for Jewish Iranian History and Heritage; and Dr. Habib Levy Persian Garden – David and Laura Merage, USA
- Upgrade of Porter EcoBuilding to LEED Platinum standard – Porter Foundation, UK
- Helene Westreich Film and Television Studio – William F. Cohen and Gail White, USA
- Equipment for Functional Genomics – Wolfson Charitable Trust, UK

Student Aid and Fellowships

- Crown Family Foundation Graduate Fellowships in the Sciences – USA
- Eleanore and Harold Foonberg Doctoral Research Fellowship in Alzheimer's Disease – USA
- Israeli Friends of Tel Aviv University Scholarship Fund for Students in Need – Israel
- Israeli Friends of Tel Aviv University Presidential Scholars Fund – Israel
- Anne and George Laufer Endowment Fund for Graduate Fellowships in Biomedical Engineering Research in Respiratory Diseases – USA
- Professor Dan Michaeli Scholarship Fund at the School of Public Health – Israel
- Irene and Manasze Mozelsio Scholarship Fund in Memory of Their Families Who Died in the Holocaust – Israel
- Marc Rich Foundation Student Scholarships – Switzerland
- Shaked Program for Ethiopian Students – Rothschild Caesarea Foundation, Israel
- Helen Sarah Steyer and Thomas Mark Steyer Scholarship Endowment Fund – USA
- Scholarship Fund for Outstanding Students in Need – Yirei-Horbet Estate, Israel
- Ruth and Allen Ziegler Student Services Division – USA

Community

- Soccer Trainer Course – Kahanoff Foundation, Canada

Listed: Projects of $100,000 and above, by alphabetical order within categories.

TOP NATIONAL PRIZES

ISRAEL PRIZE IN ECONOMICS AND STATISTICS

Prof. Yoav Benyamini | Exact Sciences

A leading expert in the integration of theoretical and applied research in statistical methodology, Prof. Yoav Benyamini was recognized for his development, together with Prof. Yosef Hochberg of TAU, of an innovative approach for handling multiple testing and preventing false statistical results known as the "False Discovery Rate (FDR)." The FDR has become the most popular method for analyzing complex hypotheses in extensive areas of science, including in bioinformatics, and is one of the most highly cited studies to come out of Tel Aviv University. Prof. Benyamini gained his BSc and MSc from the Hebrew University of Jerusalem and his PhD from Princeton University. He joined the TAU faculty in 2000 and has served as Chairperson of the Department of Statistics and Operations Research at TAU's Raymond and Beverly Sackler School of Mathematical Sciences, Raymond and Beverly Sackler Faculty of Exact Sciences. He holds the Nathan and Lily Silver Chair for Applied Statistics. He has held numerous positions including Vice President and President of the Israeli Association of Statistics.

EMET PRIZE IN MATHEMATICS

Prof. Noga Alon | Exact Sciences

A specialist in pure mathematics and computer science, Prof. Noga Alon focuses on combinatorics and graph theory applications. He is an influential world authority on the application of probability methods in discrete mathematics, and has solved mathematical problems that had previously remained unanswered for years. Born in Haifa in 1956, Prof. Alon completed his bachelor's degree at the Technion—Israel Institute for Technology, his master's at Tel Aviv University and his doctoral studies at the Hebrew University of Jerusalem. Prof. Alon is the recipient of numerous honors including the 2008 Israel Prize in Mathematics, the Israel Security Prize and the Bruno Award of the Rothschild Foundation, and he is a member of the Israel Academy of Sciences and Humanities and the Academia Europaea. He holds the Florence and Ted Baumritter Combinatorics and Computer Science Chair of the Raymond and Beverly Sackler School of Mathematical Sciences, Raymond and Beverly Sackler Faculty of Exact Sciences.

EMET PRIZE IN SCIENCE, ART AND CULTURE

Prof. Dan Zakay | Social Sciences

A leading researcher in the field of cognitive processes and conflict resolution, Professor Emeritus Dan Zakay of the School of Psychological Sciences, Gershon H. Gordon Faculty of Social Sciences, is the number one expert in the research of "psychological time" and its influence on decision making and self-confidence. He is widely known for his "Attention Gate Model" of time perception and for his work in the psychology of financial risk taking. Born in Tel Aviv in 1939, Prof. Zakay completed his bachelor's, master's and doctoral studies at Tel Aviv University and joined the Department of Psychology as a faculty member in 1974. He has served, among other positions, as Chairman of the Department, Chairman of the Israel Association for Organizational Development and Chair of the Israel Association of Psychologists. His research has won grants from leading foundations, among them the Israel Academy of Sciences and Humanities and the United States-Israel Binational Science Foundation (BSF).

DISTINCTIONS

Prof. Yair Aharoni, Management, Emerald Literati Network 2011 Outstanding Author Contribution Award

Prof. Noga Alon, Exact Sciences, Best Conference Paper at TARK 2011 Conference

Prof. Roni Aloni, Life Sciences, Member of Leopoldina, the German National Academy of Sciences; Member of the International Academy of Wood Science

Prof. Pinhas Alpert, Exact Sciences, 2011 Certificate of Championship of the Lower Jordan River granted by Friends of the Earth Middle East; Member of the International Advisory Committee to UNEP's Global Environmental Outlook Report GEO-5 2010-2012.

Prof. Karen Avraham, Medicine, Teva Prize for Groundbreaking Research in the Field of Rare Diseases

Prof. Leslie Banks-Sills, Engineering, Member of the European Academy of Sciences and Arts

Prof. Peter Bamberger, Management, Fellow of the Society for Industrial and Organizational Psychology (SIOP)

Prof. Daniel Bar-Tal, Humanities, 2011 Harold Lasswell Award of the International Society of Political Psychology

Prof. Yair Bar-Haim, Social Sciences, Fellow of the Association for Psychological Sciences

Prof. Daphne Barak-Erez, Law, appointed Israel Supreme Court Justice

Prof. Nasir Basal, Humanities, Ben-Zvi Prize for the Study of Jewish Communities in the East

Dr. Alex Bronstein, Engineering, Krill Prize for Excellence in Scientific Research of the Wolf Foundation

Prof. Nachum Dershowitz, Exact Sciences, Herbrand Award for Distinguished Contributions to Automated Reasoning

Prof. Ehud Gazit, Life Sciences, Chief Scientist of the Israel Ministry of Science and Technology

Dr. David Disatnik, Management, 2010 Dan Suesskind Prize of Teva Pharmaceutical Industries

Prof. Aron Dotan, Humanities, Ben-Zvi Prize for Study of Jewish Communities in the East

Dr. Avigdor Eldar, Life Sciences, Alon Fellowship; Human Frontiers Science Program Career Development Award; Marie Curie International Reintegration Grant; European Research Council Grant

Prof. Margalit Finkelberg, Humanities, 2012 Rothschild Prize

Prof. Lev Fishelson, Life Sciences, the Israeli Association for Aquatic Studies' Lifetime Achievement Award

Prof. Chaim Gans, Law, Landau Prize for Political Science and International Relations from Mifal Hapayis; Bahat Prize for the Best Scholarly Book in Hebrew of 2011; Cheshin Prize for Academic Excellence in Law

Prof. Hagit Halperin, Humanities, S. Yizhar Prize

Dr. Iftach Haitner, Exact Sciences, 2011 SIAM Outstanding Paper Prizes

Prof. Zvi Hashin, Engineering, 2012 Benjamin Franklin Medal in Mechanical Engineering from the Franklin Institute

Prof. Ehud Heyman, Engineering, Balthasar van der Pol Gold Medal of L'Union Radio- Scientifique Internationale (URSI)

Dr. Oded Hod, Exact Sciences, Member of the Global Young Academy (GYA)

Dr. Yuval Kalish, Management, 2011 International Network for Social Network Analysis (INSNA) Citation Award

Prof. Dany Leviatan, Exact Sciences, Honorary Doctorate from the University of Jaén, Spain

Prof. Zev Levin, Exact Sciences, Member of the World Meteorological Organisation Expert Team on Weather Modification

Prof. Oded Menda-Levy, Humanities, S. Yizhar Prize

Prof. Rafi Nachmias, Education, EDEN Fellow 2011 of the European Distance and E-Learning Network

Prof. Gil Navon, Exact Sciences, Landau Prize for Developments in Magnetic Resonance Imaging from Mifal Hapayis

Prof. Morris Podolak, Exact Sciences, Member of the IAU Commission on Extrasolar Planets

Prof. Galili Shahar, Humanities, Marie Curie International Reintegration Grant

Prof. Ron Shamir, Exact Sciences, 2011 Test of Time Award at RECOMB Conference

Prof. Arie Shirom, Management, 2011 Lifetime Career Achievement Award of the American Psychological Association

Dr. Yoel Shkolnisky, Exact Sciences, Krill Prize for Excellence in Scientific Research of the Wolf Foundation

Ruben Seroussi, Arts, ACUM Prize for Lifetime Achievement in Musical Composition

Prof. Eli Sprecher, Medicine, Teva Prize for Groundbreaking Research in the Field of Rare Diseases

Prof. Boris (Boaz) Trakhtenbrot, Exact Sciences, 2011 European Association for Theoretical Computer Science (EATCS) Award

Prof. Mina Westman, Management, 2011 International HR Scholarly Research Award of the Academy of Management; Fellow of the Society for Industrial and Organizational Psychology (SIOP)

Dr. Yaron Yehezkel, Management, 2011 Bergmann Memorial Research Award

Prof. Amiram Yehudai, Exact Sciences, 2011 Most Influential Paper Award at the International Conference on Automated Software Engineering

INTERDISCIPLINARY RESEARCH

CREATIVE INTUITION MEETS EXACT SCIENCE

Music + Statistics = The Key to What's Inside

Dr. Uri Rom (Arts) wanted to verify his hunch about Mozart's compositional habits. He collaborated with **Prof. Saharon Rosset** (Exact Sciences) to subject the music to a precise rather than intuitive analysis. They defined musical patterns as their research objects, expressed them numerically, and performed computer and statistical analyses to corroborate their findings. The result: Rom's hunch was confirmed. The key in which Mozart's music was written seems to be a strong predictor of the musical content of any given piece.

Computer Science and the Stage

Prof. Zvika Serper (Arts), actor, director, scholar and world expert in traditional forms of Japanese theater, conducts basic and applied research of theater arts. His insights into vocal intonation on the Japanese stage, for example, and how it is used to signal emotion, mood or plot, were confirmed by computer analysis of speech patterns. Extracting such underlying principles from the Japanese theatrical form, he applies these to performance, actor training, and direction of Western productions. At TAU, Serper's Japanese-inspired production of The Dybbuk, among all its professional stagings since 1920, was hailed as a landmark production of the play.

STUDYING HEALTH FROM EVERY ANGLE

Hope for Diabetes Sufferers

Limited numbers of pancreas donors and little success with conventional stem cell therapy has led **Prof. Shimon Efrat** (Medicine), incumbent of the Nancy Gluck Regan Chair in Diabetes, and his life sciences colleague, Prof. Nissim Benvenisti of Hebrew University, to seek a new solution for treatment of diabetes. They discovered that by converting human pancreatic cells to stem cells, and then coaxing them to transform back into insulin-producing pancreatic cells, they could successfully produce a large supply of therapeutic material. Based on this new technology, start-up Stem Cell Therapeutics has begun the process of developing a breakthrough treatment for diabetes.

Supportive Work Environment – A Matter of Life and Death

In a collaborative study between organizational behaviorists **Prof. Arie Shirom**, **Dr. Sharon Toker** and **Yasmin Alkalay** (Management) and colleagues Ran Balicer and Orit Jacobsen of the Clalit Health Care Services Research Institute, data collected from more than 800 employees over a 20-year period revealed the grim cost of social alienation in the workplace. Those who felt they had little or no emotional support from peers at work were 2.4 times more likely to have died within the 20-year period of the study. This finding has generated international interest regarding the importance of fostering a supportive work environment in an increasingly impersonal technological world.

New Look at Living Organisms

A new laboratory, the Sackler Cellular and Molecular Imaging Center, houses state-of-the-art equipment such as the first commercially-available light microscope with an imaging resolution two to three times higher than that of conventional confocal microscopes. Headed by **Prof. Ilan Tsarfaty** (Medicine), the lab is an interdisciplinary facility where scientists can study intact biological systems and gain new perspectives on biological processes, all with the goal of developing innovative diagnostic and therapeutic tools.

CANCER RESEARCH GOES HIGH-TECH

"Theranostics" for Cancer and Other Diseases

TAU's interdisciplinary Center for Nanoscience and Nanotechnology bested 30 applicants to become the home of the new Israeli National Nanotechnology Initiative (INNI), to be directed by cancer researcher **Dr. Dan Peer** (Life Sciences). The initiative's 11 researchers, of which 8 are from TAU, will apply nano-scale techniques toward developing personalized theranostics (therapy and diagnostics) for cancer, cardiovascular and inflammatory diseases. The $11.5 million, five-year project will receive half its budget from the government and half from institutional and private sources.

DaRTs That Target Cancer

Prof. Itzhak Kelson (Exact Sciences) and his research team have developed a new kind of cancer treatment – DaRT (diffusing alpha-emitters radiation therapy). Acting like a cluster bomb, it attacks tumors with a barrage of alpha particles, a type of radiation highly lethal to localized tumor cells. The treatment was successfully tested pre-clinically on a large variety of cancer types in collaboration with **Prof. Yona Keisari** (Medicine).

A Kinder Chemo

Prof. Eytan Ruppin (Medicine), in collaboration with Prof. Eyal Gottlieb of Cancer Research UK, Glasgow and Dr. Tomer Shlomi of the Technion, has brought scientists closer to finding a treatment that targets cancer cells but leaves healthy cells unharmed. The team's computerized genome-scale model of cancer cell metabolism, the first in the world, offers a fundamentally new approach for predicting which drugs are deadly only for cancer cells. Recently published in *Nature*, their model has been used to predict and validate a promising new drug for selectively killing renal cancer cells.

Screening for Cancer and Other Disease Genes

Considering the amount of genetic data generated daily at TAU and in laboratories around the world, the next great challenge is to understand what it all means. This is the task of the Functional Genomics Laboratory, headed by **Dr. Noam Shomron** (Medicine) and funded by a Wolfson Family Charitable Trust grant. By making high-throughput genetic screening technologies available to all researchers at TAU and its affiliated hospitals, the lab allows them to carry out procedures such as testing for possible cancer-causing genes (oncogenes) in the largest possible group of patients and very quickly analyzing the resulting vast quantities of data.

ENERGY AND THE ENVIRONMENT

Designing Future Policy for Israel's Electricity Grid

In a collaborative study, **Prof. Asher Tishler** (Management) and **Prof. Yoram Margaliot** (Law) have joined **Prof. George Weiss** and **Dr. Doron Shmilovitz** (Engineering) in laying down guiding principles for Israel's policy regarding its electricity grid for the years 2015-2050. Aiming to assist the country's policymakers, the project addresses such issues as the viability of many small solar panels on rooftops versus a few large solar farms, effective management of power supply and demand, and other important issues for creating a comprehensive and efficient national electricity policy.

Social Effects of Traveling Green

MA student **Elad Shochat** (Environmental Studies) is studying the use of green technologies in transportation, with a unique focus on social aspects. Asking questions such as how introduction of green technologies might affect people's travel habits or influence government decisions regarding public transportation, Shochat's study may have major implications on future use of these technologies and related policymaking. Supervised by **Dr. Moshe Givoni** (Humanities) and Dr. David Katz of Haifa University, Shochat is the recipient of a large and prestigious scholarship awarded by the Israel Ministry of Energy and Water Resources.

Seeking Sustainable Energy Sources

Dr. Yiftah Yacoby (Life Sciences) has bioengineered a synthetic enzyme that, if successfully incorporated into algae cells, would vastly increase their ability to produce hydrogen, an important source of renewable energy. His work is part of TAU's new Renewable Energy Center, an interdisciplinary framework that coordinates the research of 55 teams at seven faculties and the Porter School of Environmental Studies.

Technology That Imitates Life

Green lawns clean themselves with rain or dew drops rather than polluting detergents; leaves act as effective solar panels; and the peel of a juicy fruit is a degradable food package that does not contaminate the environment. Doctoral candidate **Yael Helfman Cohen** (Environmental Studies), in collaboration with **Prof. Yoram Reich** (Engineering), is seeking to uncover the underlying principles and patterns of such non-polluting and efficient designs of nature. She is developing a method for identifying suitable biological phenomena for imitation, and analyzing them in a way that allows engineers to replicate the design and develop innovative and sustainable products. Director of the Israel Biomimicry Organization and recipient of a Porter Fellowship, Helfman-Cohen is pushing the frontier of the emerging field of biomimetic design.

BRINGING BACK BEAUTIFUL MINDS

In a program to combat brain drain initiated by the government and adopted by the Council of Higher Education, Israel's top universities are competing to establish 30 new Israel Centers of Research Excellence (I-COREs) that will employ 300 new faculty recruits from abroad. Tel Aviv University's I-CORE funding supports research by top young academic talent in several areas:

> At the **Center of Excellence in Algorithms** led by the Blavatnik School of Computer Science, Raymond and Beverly Sackler Faculty of Exact Sciences, **Dr. Eran Tromer**, who recently arrived from MIT and Microsoft Research New England, and **Dr. Iftach Haitner**, who completed a post-doc at Microsoft Research New England, were recruited to TAU's fast-growing research group in computer privacy, information security and cryptography.

> The **I-CORE for Gene Regulation in Complex Human Disease** enabled the Sackler Faculty of Medicine to bring on board **Dr. Irit Gat-Viks**, formerly of the Broad Institute of MIT and Harvard, to perform computational studies on the influence of various genes on immunity and susceptibility to infectious diseases; as well as **Dr. Tamar Geiger**, who returned from the Max Planck Institute of Biochemistry in Munich to study tumor proteins for a better understanding of the progression of breast cancer.

> Among the new recruits for the **Center of Excellence in Petroleum Alternatives for Transportation (PAT)** is **Dr. Amir Natan**, who recently joined the Iby and Aladar Fleischman Faculty of Engineering after post-doctoral work at Northwestern University, USA. Amir will perform theoretical modeling of novel carbon-based electrodes toward the design of more efficient energy storage devices.

INTERNATIONAL INITIATIVES

Finding Common Ground among the Faiths

The Center for Religious and Inter-Religious Studies project, a new collaboration between Tel Aviv University and Cambridge University, will aim to advance mutual understanding between the three monotheistic faiths. Headed by **Prof. Shlomo Biderman** (Humanities) on the TAU end, the center will promote innovative research, run a dedicated master's program in English, and organize public outreach opportunities among religious community leaders in the Middle East and Europe. Activities will also include joint conferences and student and faculty exchange.

Feeling Anxious? Talk to Your Computer!

Exploring ways of alleviating anxiety, **Prof. Yair Bar-Haim** (Social Sciences), head of the newly established School of Psychological Sciences, in collaboration with the US National Institute of Mental Health (NIMH), has launched the TAU-NIMH Cognitive Bias Modification Treatment Initiative. This large-scale study provides researchers on five continents with standardized treatment protocols and software to test the efficacy of computerized treatment of anxiety disorders. Based on promising preliminary results, the novel technique may prove to be a game-changer in psychiatric approaches to treatment.

Unraveling the Secrets of Plant Diseases

As part of an international consortium, **Prof. Amir Sharon** (Life Sciences) and his team at the Manna Center for Plant Biosciences participated in determining the full genetic code of several strains of particularly prolific and damaging plant fungal diseases. A comparative study of the obtained genetic data with that of other fungi revealed, among other things, the basis of sexual mating compatibility systems, and shed some light on the genetic basis of successful crop pathogens. The new knowledge could lead the way to more effective protection of agricultural produce.

Getting Down to Business in Israel

Two initiatives were launched by the Faculty of Management in Spring 2011 to familiarize future international business leaders with Israel and its opportunities. The first one, **Doing Business in Israel**, is an innovative 10-day study program introducing students from leading business schools around the world to Israel's business community and entrepreneurial mindset. The second one, the **Sofaer International Case Competition**, gathers a global mix of students to devise creative solutions for an actual business dilemma involving an Israeli company. The final presentation of last year's case studies was made before an audience of Israeli business leaders and students, with the TAU team tying for first place among 13 student teams taking part from 9 countries.

ASTRONOMY AND ASTROPHYSICS

TAU & Harvard: An Out-of-This-World Collaboration

TAU's Raymond and Beverly Sackler School of Astronomy and Physics, at the Raymond and Beverly Sackler Faculty of Exact Sciences, is teaming up with the Harvard-Smithsonian Institute for Theory and Computation for a collaborative program covering all aspects of astrophysics research. Supported by longtime TAU benefactor Dr. Raymond Sackler, the Raymond and Beverly Sackler Harvard-Tel Aviv University Astronomy Initiative will include an exchange program for students and scientists, lecture series, workshops, and a postdoctoral fellowship in astronomy with research and studies taking place in both institutions.

Anybody Out There?

Prof. Tsevi Mazeh (Exact Sciences), incumbent of the Oren Family Chair in Experimental Physics, participates in scientific surveys of the universe for planets outside of our solar system. He received a European Union ERC grant of €1.8 million awarded to outstanding senior researchers, and was selected to take part in the Kepler Mission's NASA Participating Science Program, allowing him access to proprietary data from this pioneering space mission. The international research team with which he collaborates announced the discovery of two new planets, named Kepler-34 and Kepler-35, each of which revolves around its own pair of double suns.

Toward Verifying a Prediction of Einstein's Theory

Dr. Ehud Nakar (Exact Sciences) and Prof. Tsvi Piran of Hebrew University published a paper in *Nature* describing a result that may help to verify Einstein's prediction of gravitational waves, or ripples in the fabric of space-time. They showed that radio waves are produced concurrently with gravitational waves and are far easier to detect. This suggests that scientists' future detection of weak gravitational wave signals could be confirmed by the presence of radio waves. Collaborating with an international research team, Nakar and Piran were granted observation time on a new radio-telescope in the US to obtain evidence supporting their theory. Dr. Nakar also received a €1.5 million European Union ERC grant for his study of the physics of supernova explosions, which will deepen understanding of the universe.

ARTISTIC NETWORKING ON A WORLD SCALE

The International Language of Music

Under the direction of **Prof. Tomer Lev** (Arts), promising young pianists from the Buchmann-Mehta School of Music toured the Far East, performing and holding master classes at the Bejing Central Conservatory of Music, Taipei National University of the Arts, Tainan Technological University and other venues. They delighted audiences with a multi-piano program of works played with 4, 6, and 8 hands. A musical exchange program between TAU and Chinese institutions is now under discussion, and upcoming world appearances include ones in Montevideo, Buenos Aires and Sao Paulo.

In a separate, extremely successful two-week Brazilian tour, the Buchmann-Mehta Symphony Orchestra performed eight concerts in major cities including Rio de Janeiro and Sao Paulo. They were joined by Brazil's Heliopolis Orchestra at the flagship concert in Paulina conducted by the Buchmann-Mehta School's Honorary President, Zubin Mehta. The other seven concerts were conducted by **Prof. Zeev Dorman** (Arts), some of them featuring cellist Misha Maisky and Finnish student Petteri Iivonen of the Adler-Buchmann International Program for Outstanding Foreign Students in Music.

Platform for Budding Filmmakers

Entirely organized and run by students and alumni, the 14th biennial Tel Aviv International Student Film Festival to be held in June, 2012, will host new as well as recognized talent from the film industry. The International Competition will introduce a "Mediterranean Spotlight" that will include films from Turkey, Morocco, Greece, Spain, Afghanistan and Gaza. Among competition judges will be TAU alumnus Ari Folman, director of *Waltz with Bashir.* Continuing the previous festival's successful Israeli-Palestinian cooperation under the direction of **Prof. Yael Perlov** (Arts), this year's festival will feature Israeli and Palestinian films on the theme of water. Another new initiative, Mediterranean Congress, will be attended by 15 Palestinian television and cinema personalities.

COMMUNITY

Working for Ethiopian Employment

The Workers' Rights Clinic of the Elga Cegla Clinical Legal Education Program, the only such program in Israel dealing with employment issues, has now launched a legal aid and empowerment project aimed at improving the situation of Israeli Ethiopian workers. Headed by **Prof. Neta Ziv** (Law), the clinic seeks to catalyze social change by increasing the involvement of Israel's legal community, especially TAU law school alumni, in social justice work on behalf of the Israeli Ethiopian community.

Protecting the Welfare of Survivors

Another new law clinic, the Holocaust Survivors' Rights Clinic, was established to ensure the welfare and dignity of Holocaust survivors through the use of legal means, including litigation, representation before committees, and legislative lobbying. Law students who participate in the clinic receive weekly instruction from **Prof. Jose Brunner** (Law) and attorney **Yossi Hayut** on issues regarding Holocaust survivors and the legal frameworks enacted to respond to their needs. The project receives funding from Dr. (h.c.) Josef Buchmann, benefactor of the Buchmann Faculty of Law and other major TAU projects and life-long supporter of Holocaust survivors and Holocaust remembrance.

The Business of Social Responsibility

MBA Cares is a new community-oriented program offered as part of the Faculty of Management's Sofaer International MBA. Multinational teams of students are given the opportunity to provide free organizational counseling, business plan development and marketing guidance to clients that include a health clinic and a Druze village. While the participating organizations benefit from this input, the students get to see the impact of their managerial decisions and gain a heightened sense of social responsibility.

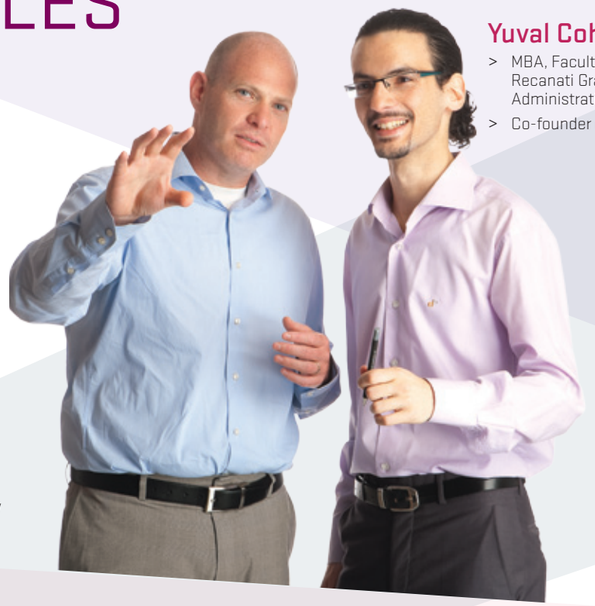
Meeting Special Dental Needs

Among cancer sufferers, one of the side effects of chemotherapy is oral ulcers and infection. This is particularly troublesome for children, who often stop eating as a result. On the initiative of researcher **Miri Dotan** (Dental Medicine), a group of 5th-6th year dental students pays weekly visits to child oncology wards in TAU-affiliated hospitals, examining the children, instructing them on oral hygiene and distributing toothbrushes and mouthwash. Children benefit from alleviation of their discomfort, while students gain understanding of the importance of a healthy mouth to one's sense of wellbeing. In a separate community outreach program, orthodontics students and their instructors provide care to Ethiopian immigrants and other disadvantaged groups.

Thursdays on Campus – Everyone's Invited!

This year, Tel Aviv University decided to put a new spin on community involvement – instead of just reaching out, everyone is invited in. Every Thursday evening the campus is opened to the general public, with a range of stimulating, informative, entertaining and tasty options on offer. Activities include lectures, rotating exhibitions, film screenings, performances by guest artists, a campus art fair, group dance lessons and a farmers market offering choice produce. Visitors can choose to attend lectures by leading faculty members on topics ranging from the Arab Spring to renewable energy or the latest advances in brain research.

PROFILES



Shimon Constante

- EMBA, Kellogg-Recanati International Executive MBA Program
- Founder and CEO of several high-tech companies
- Latin American Regional Manager for Miya, an Arison Group company

Yuval Cohen

- MBA, Faculty of Management–Leon Recanati Graduate School of Business Administration
- Co-founder of high-tech startup, Purple Bit

MENTOR & MENTEE

BEING REALISTIC WITHOUT LOSING ENTHUSIASM

Twenty-eight year old Yuval Cohen and his startup team were under pressure. If they didn't soon come up with a brilliant marketable product based on their ideas for an online chat platform, they'd have to abandon their dream, split up and look for regular jobs. Enter Shimon Constante with game-changing advice. Showing them it needn't be an all or nothing deal, he suggested they carry on as a team and do freelance work while rethinking their direction. The result: the startup is alive and well, and the team is feeling less stressed and more confident.

Shimon, a successful entrepreneur in the mobile content and security fields, was paired up with Yuval, a recent MBA graduate, through the Faculty of Management's Recanati Mentoring Program. Shimon says he joined the program because "I love working with creative young people, and I want to make sure they don't repeat my mistakes."

Yuval joined because he felt "there must be a hundred things you absolutely mustn't get wrong when starting a business and it's unrealistic to think we'd get them all right." Shimon and Yuval have developed a strong relationship that has continued beyond the mentoring period. "I still phone Shimon with questions," Yuval admits, and adds, "I'd like to be a mentor myself one day."

NEW RECRUIT

NO BORDERS TO INTERDISCIPLINARY COOPERATION

When Vered Blass first encountered Engineers Without Borders (EWB) in the US, her reaction was, "Wow!" An international non-profit organization, EWB enlists professionals and volunteers from a multitude of disciplines in projects for sustainable community development. Vered was intent on continuing her EWB work in Israel, and found not only a supportive partner in TAU's Dean of Engineering, Prof. Ehud Heyman, but also a home for a new EWB-Israel chapter at TAU. One of the chapter's many projects focuses on East Jerusalem villages where sewage flows from open pipes into a nearby stream. A small-scale water treatment system is being set up, including a facility for turning waste into usable bio-gas for cooking. "We don't offer charity," Vered stresses. "We help the communities help themselves."

Dr. Vered Blass

- Founder of TAU chapter of Engineers Without Borders at the Iby and Aladar Fleischman Faculty of Engineering
- MSc and PhD, UC Santa Barbara, Environmental Science and Management
- Lecturer at the Faculty of Management–Leon Recanati Graduate School of Business Administration

Sharon Teo

- Enrolled in International MA Program in Environmental Studies
- BA, Business Management, Singapore Management University
- Recipient of Israel-Asia Leaders Fellowship

INTERNATIONAL STUDENT

NOT A TREE-HUGGER – JUST PASSIONATE ABOUT DOING THINGS RIGHT

After living and working in nearly a dozen countries, Sharon Teo knew what she wanted to do. "Promoting green business practices in emerging markets became my focus and my passion. I saw how developing countries ignored environmental issues for the sake of growth. I wanted to do something to change that." Sharon had the business experience but lacked the necessary technical know-how, and then she saw the English-language program at TAU's Porter School of Environmental Studies. Now armed with the knowledge she was missing, Sharon will pursue a career in cleantech. "I'm not a tree-hugger, I just know that in the long term industry will have to be sustainable."

ALUMNUS

"TO BE A TEACHER IT'S NOT ENOUGH TO KNOW YOUR SUBJECT – YOU NEED TO INSPIRE."

Omer Weisblum, recently named Israel's top high school mathematics teacher, explains what drives him: "I want to be a significant figure in someone's life just like some of my teachers were in mine." His graduate studies at TAU gave him tools for independent research and self-criticism, he says. "I am always asking myself, how can I be better?" To that end, Omer achieves a great deal more than outstanding math instruction in Ramat Gan's Blich High School. He presents the history and people behind every new subject, "to put a human face to the numbers and add interest." He analyzes poems with his students and performs magic math tricks. And he teaches values. "When I educate rather than just teach, those for me are the most important lessons."

Omer Weisblum

- Israeli Teacher of the Year 2011
- MA, Jaime and Joan Constantiner School of Education

RECENT GRADUATE

SHOOTING FOR NOTHING LESS THAN THE TOP

When asked where she expects to be in five or ten years, Hagit Bulmash answers without hesitation – "I aim to be number one in my field of anti-trust law." She researches legal issues relating to market competitiveness, and has worked as an antitrust lawyer and as the deputy director of the Israel Bar Antitrust Committee. "Consumers should be able to purchase the best quality products at the best prices," Hagit believes, and her ideas on how to make this happen through legislation are already creating an international stir in the field. "My role model, since I was a teenager, is Marie Curie – the first female to win the Nobel Prize, and in a totally male-dominated field. She achieved the top."

Dr. Hagit Bulmash

- PhD, Zvi Meitar Center for Advanced Legal Studies, TAU
- Currently a Visiting Scholar at Columbia University, NY

CAMPUS-WIDE RESEARCH

ALL IN THE FAMILY

Being a Mother Doesn't Help You Get a Job

Dr. Tamar Kricheli Katz (Law), newly arrived at TAU from Stanford, is studying sources of labor discrimination that lead to persistent inequality. Focusing on perceptions of choice and how they influence job discrimination, she found that when motherhood, obesity and a gay sexual preference are perceived as voluntarily chosen behaviors, employers are less favorably disposed toward hiring such candidates – a disposition that changes when these conditions are perceived as something less than free choice.

The Work-Family Interface on the Go

Considering the increasing globalization of large organizations, **Prof. Mina Westman** (Management) contends that spousal satisfaction and successful fulfilment of family expectations are important factors in, and predictors of, employees' success in overseas or highly mobile positions. She concludes that issues such as family cohesion, adjustment and needs should be introduced into relevant companies' organizational culture.

Helping Parents, Teachers and Peers to Help Special Needs Children

Parenting children with profound disabilities is no easy job. Post-doctoral fellow **Dr. Anat Zaidman-Zait** (Education), researching parental stress and coping techniques, is examining the interrelations between parent well-being and children's developmental outcomes with the aim of formulating best practices for early intervention programs for children with disabilities and their families. Her work is under the supervision of **Prof. Esther Dromi**, who is also overseeing research by doctoral candidate **Mati Zakai-Mashiach** on how the behavior of teachers and classmates can contribute to the development of social interest in children with autistic spectrum disorders (ASD).

Getting Teens to Turn Down the Volume

Research by **Prof. Chava Muchnik**, **Dr. Noam Amir**, **Dr. Ricky Kaplan-Neemen** and **Esther Shabtai** (Health Professions), which appeared in the *International Journal of Audiology*, has important implications for the wellbeing of adolescents who use personal listening devices such as MP3s or iPhones. It was found that due to these teens' music-listening habits and their preferred levels of volume under conditions of everyday noise, 25 percent of them are at risk of premature hearing loss. Results highlight the need for education, regulation and technological solutions enabling safe use of such devices.

HEALTH MATTERS

A More Potent Antibiotic

Dr. Micha Fridman (Exact Sciences) has developed a new antibiotic compound that targets a bacterium's outer membrane, thereby overcoming most of its resistance mechanisms. Found to work on a range of infectious bacteria that no longer respond to existing antibiotics, including the strain that causes anthrax, this is the kind of laboratory breakthrough that, after a long and arduous path, can be translated into future drugs.

Winning the War on Bacteria through Spying

Deciphering an enemy's code and manipulating it is a potent strategy in war. **Dr. Avigdor Eldar** (Life Sciences) is applying this strategy to the war on infectious bacteria to create a totally new kind of drug target. He is studying the way bacteria communicate using chemical signals, exploring how best to sabotage their communication, and even working on designing a bacterial Trojan horse. In recognition of the importance of this work, the European Research Council has awarded him a generous grant.

Keeping Healthcare on the Right Track

After serving as a physician in the Israel Defense Forces, **Dr. Einav Horowitz** turned to healthcare policy, working with the Israel Center for Technology Assessment in Health Care and the Health Ministry's Medical Technology and Infrastructure Administration. Today, as a PhD candidate under the supervision of **Prof. Moshe Leshno** (Management), she is assessing the validity of treatment regimens for patient survival by using computerized models that simulate the clinical course of diseases, in combination with a unique method of data analysis. This method of evaluation may become a useful tool for establishing future clinical guidelines.

Prolonged Sitting Is Fattening

Dr. Amit Gefen (Engineering) and PhD candidate **Na'ama Shoham** made an unexpected discovery while studying the mechanics of bedsores in people who are bedridden or wheelchair bound. They found that their subjects displayed not only muscle atrophy, but also an increase in fat cells. Further experimentation revealed that constant pressure on fat cells leads to their proliferation. Published in the *American Journal of Cell Physiology*, these findings generated international interest, especially with regard to their implications for office workers' prolonged sitting in chairs.

New Insights into Obsessive-Compulsive Disorder (OCD)

In his work with OCD patients, **Prof. Reuven Dar** (Social Sciences) took note that many reported intense oral or tactile sensitivity as children. Research to examine possible links revealed that this kind of hyper-sensitivity corresponded with ritual behavior in children and with obsessive-compulsive symptoms in adults. He proposes that childhood rituals serve as a defense against an impinging environment, affording a sense of control, and obsessive-compulsive behavior in adults may serve a similar function. Such knowledge may contribute to the detection and treatment of OCD.

LIVING TOGETHER – SOCIETY AND HUMAN BEHAVIOR

Birth, Death and the Law

Israel is considered unique among Western nations in its permissive regulation at the beginning of life and restrictive regulation at its end. **Prof. Shai Lavi** (Law), director of TAU's new Edmond J. Safra Center for Ethics, uses Halacha (Jewish law) as the key to deciphering this apparent paradox. Studying five central issues at both ends of life – cloning, stem-cell research, late abortions, withdrawal of life-sustaining treatment and defining death – Lavi suggests that Jewish law, and consequently Israeli law, accepts the use of advanced biotechnologies while rejecting the scientific view of the world that accompanies them.

Designer Cities

With the help of Latin American friends, **Dr. Efrat Lieberthal** (Arts) has established the Urban Planning and Design Laboratory at the David Azrieli School of Architecture. The lab enables advanced urban research, city planning, and modeling of efficient networks for transportation, communication, disaster management and other complex systems. Lieberthal's interdisciplinary research integrates methods from physics and mechanical statistics into the study of urban dynamics and development.

How to Build a Model Nation

Having just returned to TAU's Department of Jewish History after spending a year as a visiting scholar at York University, Toronto, **Dr. Orit Rozin** (Humanities) is studying Israel's efforts at forging a viable democracy and model nation. Her work focuses on 1950s Israel and civil rights, still a central topic today. She is tracking civil rights campaigns, identifying both the social groups that shaped and reformed the nation's civil rights as well as those targeted by them, to decipher the kind of Israeli identity 1950s reformers were seeking to mold and the degree to which they succeeded or failed. Partial support for the research comes from TAU's Minerva Center for Human Rights.

Context Is Everything

After collecting and studying Holocaust testimonies in Yiddish, Hebrew and English from Lithuanian survivors in Lithuania, Israel and the US, doctoral candidate **Hannah Pollin-Galay** (Humanities) is analyzing the influence of social context and language on how one interprets the Holocaust. Concluding that context shapes even the most basic formulations of what it means to suffer and survive, she contends that historians must take note of how culture informs the act of witnessing, and should view each testimony as a historic event of consequence. Pollin-Galay is the recipient of a Rotenstreich Fellowship in Humanities and a Lessing Fellowship in European History.

Historic Origins of Iranian Territoriality

PhD candidate Chelsi Mueller (Humanities) of the Alliance Center for Iranian Studies is addressing a gap in the scholarly literature on Iranian history. Supervised by **Profs. David Menashri** and **Uzi Rabi**, she is examining Arab-Iranian relations in the Persian Gulf between 1919 and 1939. She proposes that the sharp Arab-Iranian divide characterizing Gulf geopolitics today emerged largely during the interwar period as a result of Reza Shah's aggressive claims to Iranian sovereignty over the entire Persian Gulf, including the Arab sheikhdoms.

UNDERSTANDING AND HARNESSING NATURE

Species Begets Species – Discovering Causes of Biodiversity

Identifying new species of plant-eating insects around the world, taxonomist **Dr. Netta Dorchin** (Life Sciences) of the Steinhardt National Collections of Natural History has discovered some 60 new species in Israel's Dead Sea and Arava regions alone. Her current study on whether diversification of these insects also leads to diversification of their natural enemies, such as parasitic wasps, suggests that speciation in one organism leads to adaptive changes in other organisms up the food chain and therefore to an escalation of biodiversity.

Nano-Antennas Catch the Light

Prof. Yael Hanein's innovative research project, in collaboration with **Profs. Jacob Scheurer** and **Amir Boag** (Engineering), may revolutionize the way we detect light. They have created tiny, nano-scale antennas that are sized to match the specific light energy, or wavelength, to be absorbed. With a potential for capturing a far higher percentage of sunlight than today's photocells, this groundbreaking technology could have far-reaching future applications in renewable energy. It could also have important security uses, such as enabling extremely sensitive infra-red sensing of infiltrators or other hot targets like missiles.

Producing Energy Like Nature Does

Working toward a means of sustainable energy production, **Prof. (emer.) Nathan Nelson** (Life Sciences) focuses on one of nature's own methods – photosynthesis. In a project funded by the prestigious Advanced European Research Council (ERC) Grant, Nelson will study the structural and functional properties of photosynthetic reaction centers in plants and apply the results to the production of clean energy.

Growing Better Crops

Considering the future food needs of a growing world population, new faculty recruit **Dr. Assaf Distelfeld** (Life Sciences), who joined TAU from the University of California, Davis, is working on improving crop quality and yields, especially of wheat. In a project funded by TAU's Manna Center for Plant Biosciences and a Marie Curie International Reintegration Grant, Distelfeld's team is identifying the genes that help elevate grain protein, the most important quality parameter of wheat. Understanding how these genes function holds the key to producing a more nutritionally rich wheat crop.

TEACHING

Combating Student Drop-Out

A new, three-year program devoted to promoting retention of the University's Israeli-Arab student population, sponsored by the Kahanoff Foundation of Canada, has been launched. Based on pilot research that was initiated and supported by the Ruth and Allen Ziegler Student Services Division, the program will serve all first-year Arab students on campus, as well as others in their second and third years of study. It will offer them a comprehensive support system comprising academic, personal, social and financial assistance, according to need. Its impact is anticipated to be far-reaching: it should significantly reduce the higher than average drop-out rates among Israeli-Arab students at TAU, improve their well-being and sense of belonging, and ultimately help them succeed personally and professionally once they have graduated.

Speak Chinese yet?

In recognition of Chinese being one of the world's most rapidly growing languages, Israel's Ministry of Education is developing a program for teaching Chinese in the school system. TAU's Jaime and Joan Constantiner School of Education is the only one in the country being permitted to certify teachers of Chinese to meet this need. Open to final year undergraduates, as well as to BA or MA graduates in East Asian Studies or other relevant areas, studies include classroom practice.

Music in the Air

Following the success of its Swiss Friends MA Program in String Pedagogy, the Buchmann-Mehta School of Music is establishing the Swiss Friends MA Program in Wind Pedagogy. Outstanding teachers of wind instruments from throughout the country were selected to join the two-year program on full tuition scholarships. In addition to band instruction, wind orchestra conducting, and arrangement writing, courses will include subjects such as child psychology and learning disabilities. Both the string and wind pedagogy programs were made possible through the funding of the Swiss Friends of Tel Aviv University, longtime supporters of the music school.

Law & Technology – Who's in Charge?

Commencing in the 2012 fall semester, the Shiboleth & Co. Workshop on Law & Information Technology (IT), headed by **Prof. Michael Birnhack** (Law), will present a unique international and interdisciplinary forum on the role of law in a rapidly changing IT world. Leading scholars from Israel and abroad will present research works in progress, with guest IT regulators and lawyers joining the discussions. The workshop will enrich and broaden the curriculum of students focused on IT and intellectual property law.

NEW INTERNATIONAL DEGREE PROGRAMS

MA in Environmental Studies – Concluding its first year with students from North and South America, Europe and Asia, the new master's program at the Porter School of Environmental Studies provides a rare opportunity for intensive multidisciplinary investigation of environmental issues with an emphasis on Israel's unique geographic and geopolitical setting. Students can now choose a Business and Environment track offered in collaboration with the Sofaer International MBA Program and the Alfred Akirov–ALROV Institute for Business and Environment. The track includes internships with Israel's leading environmental organizations, agencies, consulting firms and cleantech investment firms, providing a springboard for undergraduates, as well as to future employment in fields that impact environmental attitudes and policy.

MA in Jewish Studies – In Israel's only one-year intensive MA in Jewish Studies taught in English, students encounter classic Jewish texts from the Bible to modern times. Studies cover every aspect of Jewish culture, history, theology, philosophy, mysticism and language at TAU's Department of Hebrew Culture Studies, the world's single largest Jewish Studies department.

INTERNATIONAL PROGRAMS COMING SOON

International BA in Liberal Arts – Due to commence in October 2012, this BA program will allow students to explore several disciplines by offering a broad selection of courses ranging from philosophy, literature and Israel, Jewish and Middle Eastern studies, to psychology, digital culture and communications.

BSc in Electrical and Electronics Engineering – When it opens in 2013, this program will be the only one of its kind in the country to be taught in English. It will offer an internationally-recognized faculty, access to world-class laboratories, internships with major R&D companies and startups, and an opportunity for global networking among fellow students from around the world.

International MA in Archeology and Ancient Israel – Unique in Israel and the world, this program run by the Jacob M. Alkow Department of Archeology and Ancient Near Eastern Cultures will afford students the opportunity to study the archeology and history of the Land of the Bible at the source. It will offer fieldwork experience at important excavation sites and an introduction to the most advanced tools for archeological and historical study. The program commences at the start of the 2012/13 academic year.

SUMMER SCHOOLS

The Naomi Prawer Kadar International Yiddish Summer Program – In cooperation with Beth Shalom Aleichem, the program responds to the growing interest in Yiddish as a rich source of Jewish culture and history and is the largest of its kind in the world. It trains over 100 participants from some 15 countries, including the next generation of Yiddish scholars and educators. The program was newly dedicated by the Naomi Foundation in memory of Dr. Naomi Prawar Kadar, a New York City teacher and scholar who was a driving force for excellence and inspiration among her students. TAU's Goldreich Family Institute for Yiddish Language, Literature and Culture, which sponsors Yiddish educational and cultural activities throughout the year, is administering the program.

Summer Institute of Advanced Epidemiology and Preventive Medicine – This first-of-its-kind intensive summer course is offered by TAU's School of Public Health and will be taught by faculty from Johns Hopkins, Harvard and Tel Aviv Universities to MA graduates of Public Health, MSc students of Epidemiology, medical students, physicians and nurses.

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