



EVALUATION OF LIFE SCIENCES STUDIES

WEIZMANN INSTITUTE OF SCIENCE

COMMITTEE FOR THE EVALUATION OF LIFE SCIENCE STUDIES IN
ISRAEL

September 2023

Section 1: Background and Procedures

- 1.1** In the academic year 2022, the Council for Higher Education [CHE] put in place arrangements for the evaluation of study programs in the field of Life Sciences and Biology in Israel.
- 1.2** The Higher Education Institutions [HEIs] participating in the evaluation process were:
- Achva Academic College
 - Ariel University
 - Bar Ilan University
 - The Hebrew University
 - The University of Haifa
 - Technion
 - Tel Aviv University
 - Weizmann Institute
- 1.3** To undertake the evaluation, the Vice Chair of the CHE appointed a Committee consisting of¹:
- **Prof. Lynne Regan** – Institute of Quantitative Biology, Biochemistry and Biotechnology, Edinburgh University, UK. *Committee chair.*
 - **Prof. Joseph Buxbaum** – Department of Psychiatry, Icahn School of Medicine at Mount Sinai, USA.
 - **Prof. Edna Cukierman** – Cancer Signaling & Microenvironment Program, Fox Chase Cancer Center / Temple Health, USA.
 - **Prof. Orna Elroy-Stein** – Shmunis School of Biomedicine and Cancer Research, Tel Aviv University, Israel.
 - **Prof. Mark Hauber** – School of Integrative Biology, The University of Illinois at Urbana-Champaign, USA.
 - **Prof. Bruno Lemaître** – School of Life Science, École polytechnique fédérale de Lausanne (EPFL), Switzerland.
 - **Prof. Carol Shoshkes Reiss** – Department of Biology, New York University, USA.
 - **Prof. Shai Shaham** – Developmental Genetics, Rockefeller University, USA.
 - **Prof. Vincent Tropepe** – Department of Cell and Systems Biology, University of Toronto, Canada.

Anat Haina served as the Coordinator of the Committee on behalf of the CHE.

- 1.4** The evaluation process was conducted in accordance with the CHE's Guidelines for Self-Evaluation (January 2022). Within this framework the evaluation committee was required to:
- examine the self-evaluation reports submitted by the institutions that provide study programs in Life Sciences and Biology;
 - conduct on-site visits at those institutions participating in the evaluation process;

¹ The committee's letter of appointment is attached as **Appendix 1**.

- submit to the CHE an individual report on each of the academic units and study programs participating in the evaluation;
 - set out the committee's findings and recommendations for each study program;
 - submit to the CHE a general report regarding the evaluated field of study within the Israeli system of higher education including recommendations for standards in the evaluated field of study;
- 1.5** The evaluation committee examined only the evidence provided by each participating institution — considering this alongside the distinctive mission set out by each institution in terms of its own aims and objectives. This material was further elaborated and explained in discussions with senior management, lecturers, students, and alumni during the course of each one-day visit to each of the institutions.
- 1.6** In undertaking this work, the committee considered matters of quality assurance and quality enhancement — applying its collective knowledge of developments and good practices in the delivery of higher education in Life Sciences and Biology (mainly from European countries and North-American countries) to the evaluation of such provision in Israel.

Section 2: Executive Summary

The Weizmann Institute of Science (WIS) is a globally-recognized research institute. It is clearly well-funded, through grants, an endowment, philanthropy, Intellectual Properties, and more. Institute funding is managed in a manner that appears to be allocated thoughtfully to the benefit of all researchers and trainees. At all levels the Evaluation Committee heard that “any experiment was possible” – either by using the vast, and second to none, collection of state-of-the-art shared instrumentation, or by well-justified new technology purchases (with WIS funding). WIS is “committed to excellence” as the primary criterion for recruitment of faculty, postdocs, and students. The results of this “excellence-seeking” approach were obvious to the Evaluation Committee; By all measures, research at the WIS is outstanding and world-leading.

Quality assessment at WIS is extensive. The scientific and academic programs of the Life Sciences discipline are reviewed based on high standards by a group of highly distinguished international researchers (SAAC) every 5-6 years. The Committee was impressed by the high academic standing of the PIs, their drive to excel, the availability of state-of-the-art, excellent infrastructure, and the philosophy of the management to help and provide all it takes to execute top-notch science.

Feinberg School for Graduate Studies administrates all processes related to MSc and PhD training. Most courses are research-focused and highly specific, resulting in graduates with excellent research skills, but potentially limited awareness of topics unrelated to their immediate research. Efforts should be made to also provide breadth in scientific content and the impact of research on society. The Committee fully supports the new restructuring of the teaching program in Excellence Clusters in Life Sciences (ExCLs).

The Committee observed commitment for teaching – especially when gaps in students’ knowledge had been observed, and new courses were designed to fulfill the need. Recently recruited faculty members were particularly enthusiastic. The MSc rotation system is highly appreciated by students and is considered a valuable aspect of the training offered at WIS. Nonetheless, the Committee recommends finding ways to operate this system in a more transparent and equitable manner, because several issues, such as unfair pressure by Faculty members asking students to “commit” prior to conducting all rotations, were shared with the Committee. To capitalize on this excellent training, career development for all trainees should be formalized.

The Evaluation Committee heard about multi-tier systems that either were in place or were planned to be implemented soon, which are intended to address SER identified issues – for example, increasing the fraction of Israeli-Arabs/Ultra-Orthodox/first generation in higher education, at all levels. These plans were shared with the Evaluation Committee and were considered to be exemplary, as these clearly recognized that a multi-faceted approach was required. Also, the proposed involvement of sociologists in devising assessment methods will allow the strategies that are most effective to be identified and implemented.

In stark contrast, the Committee heard, from stakeholders at all levels, of examples of supervisor harassment and bullying experienced by students. This is a great concern. There is as yet no way to report bullying that students and faculty are comfortable using. Then again, the Committee was pleased to learn that new approaches to address this issue are already being developed and/or implemented (e.g., Ombudsperson; ‘SOS’). Hence, the Committee commends the leadership efforts and strongly recommends immediately pursuing these strategies. Further, the Evaluation Committee learned that these initiatives and policies are not yet well known to all at the WIS community, and thus the administration needs to determine a more effective means to communicate with faculty and trainees.

Various teaching resources are available for all faculty members. In contrast, mentorship and graduate supervision training for new, and established, PIs are somewhat limited. There have been significant improvements over the years in changing the peer-pressured “24/7 research” culture at WIS, and we heard that there is greater awareness of the importance of work-life balance by the administration. Nonetheless, the Committee noticed that this undercurrent continues to exist, to some extent, leading to instances of abusive behavior by PIs toward students. The Committee recommends continuing to develop a rigorous code of conduct for all WIS faculty and staff and implement the intended mandatory mentorship and graduate supervision training program for all PIs to be taken in their first year at WIS.

The Committee was impressed to learn that start-up packages are very generous and internationally competitive. Overall, the resources at the institute are outstanding and there are multiple opportunities annually to access resources to enhance a lab’s infrastructure. Recruitment, appointment, and promotion policies are made available to all faculty, and the process and expectations for tenure and promotion to Associate Professor seem to be transparent. On the other hand, faculty members expressed concern that the process for promotion to full professor is somewhat opaque. The Committee noted, however, that feedback to the administration has resulted in a reevaluation of this process and encourages WIS leadership to continue carrying on with this potential improvement.

The Committee noted a commitment in the Life Sciences program to diversity among students and faculty, including the appointment of a specific office to handle related issues. The Committee was told of several new institutional initiatives aimed at inclusivity and cultural awareness. The Committee encourages a directed effort to recruit more Arab faculty members and trainees at all levels (from among Israeli Arab, and perhaps from neighboring Arab countries) as well as non-Israeli faculty members.

The Committee was genuinely impressed with not only the state-of-the-art core and laboratory research infrastructure made available to the Life Sciences (and other) research groups, but also with the Institute's willingness to source, obtain, and build up new facilities for new hires, new projects by tenured PIs, and especially for collaborative proposals. The diversity and strength of the Institute's 60+ core facilities are cutting-edge. The Committee is pleased that WIS is taking the initiative to enhance the national impact of these resources.

Section 3: Observations

3.1 The Institution and the Parent Unit

Weizmann Institute of Science (WIS) includes five Faculties: Chemistry, Biochemistry, Biology, Mathematics and Computer Science, and Physics, as well as a Department of Science Teaching. Together with their respective Deans, the Faculties are integrated and treated in a balanced manner by the President's Office. The five Faculties involved in research work closely and collaboratively together, as well as with the President's Office. This collaborative atmosphere is evident and provides an environment that supports excellence across the entire WIS.

Life Sciences at WIS (the purview of the Committee) is divided into the Faculty of Biochemistry and the Faculty of Biology. The Faculty of Biochemistry includes the Life Sciences Core Facilities, the Structural Proteomics Unit, and the Departments of Biomolecular Sciences, Molecular Genetics, Plant and Environmental Sciences. The Faculty of Biology includes the Departments of Immunology and, Regenerative Biology, Brain Sciences, Systems Immunology, Molecular Cell Biology, Molecular Neuroscience, and Veterinary Resources. Teaching in the Faculties of Biochemistry and Biology, along with other faculties, are under the Feinberg Graduate School. The Feinberg Graduate School oversees the MSc and PhD programs and the Feinberg Graduate School and the two Deans oversee the postdoctoral program. Administrative processes governing Biology studies are data-driven and thoughtful, and evolve organically in response to changing circumstances or emerging issues (internal or external).

Prof. Gilad Perez, the Dean of the Feinberg Graduate School, was present for several key meetings with this Evaluation Committee (in spite of a recent car accident). To the Evaluation Committee's delight, it was clear that the Deans, Directors, faculty members, etc., work closely together to ensure exceptional teaching and training, including monitoring the quality of teaching, mentoring, rotations, and labs.

3.2 Internal Quality Assurance

The report provided to CHE was concise. It lacked important information related to the teaching program, yet this was provided later upon request. The visit of the Committee was very well organized. The goal and vision of WIS were clearly articulated by the faculty members and heads of the institution. The Committee was able to gain the information they needed for the evaluation, as students and professors expressed themselves freely while recognizing the uniqueness of WIS. Collectively, the Committee felt that WIS took very seriously the evaluation by CHE related to the teaching and research programs. This positive spirit was noteworthy when considering the somewhat negative tone of some of the responses of WIS to the report of the previous CHE Life Science Evaluation Committee. This Evaluation Committee was hence impressed by the extensive changes implemented following the last CHE report, notably those related to the division of the study program in Life Sciences to study tracks by generating Excellence Clusters in Life Sciences (ExCLS) for the MSc program.

Quality assessment at WIS is extensive. The scientific and academic progress of the Life Sciences discipline is reviewed based on high standards by a group of highly distinguished international researchers (SAAC) every 5-6 years. The last SAAC review for Life Sciences took place in 2021. In addition, there is an internal committee for reviewing Professional Appointments and Promotions, which among others deals with issues related to mentoring graduate students.

Overall, the CHE Committee was impressed by the high academic standing of the PIs, their drive to excel, the availability of state-of-the-art, excellent infrastructure, their openness to addressing identified issues, and the philosophy of the management to help and provide all it takes to execute top-notch science.

3.3 The Department/Study Program

The Life Sciences program at the Weizmann Institute of Science offers graduate MSc and PhD degrees. MSc students perform three mandatory laboratory rotations in the first year before choosing a laboratory in which to complete their thesis in the second year. During their 2-year degree period, MSc students also complete 24 credits of coursework. Extension of the MSc research period is possible. Those students proceeding to a PhD are required to complete 12 additional course credits. PhD studies typically last 4-5 years.

At the Feinberg Graduate School coursework and seminars are conducted in English. This approach is strongly supported by the Committee; fluency in English, and particularly scientific English, is important for advanced degrees, postdocs, and science-related jobs, both nationally and internationally. English as the language of the Weizmann likely also enhances the attractiveness of WIS for non-Israeli students, postdocs and faculty.

The Committee fully supports the new restructuring of the teaching program in Excellence Clusters in Life Sciences (ExCLS). These Clusters encompass Brain Sciences, Molecular Neurobiology, Computational and Systems Biology, and Scientific Archeology. These major tracks consist of specialization clusters (namely, Biomolecules, Cells, Immunity and Infectious Disease, Organisms, and Ecosystems), and each cluster is led by two individuals who are responsible for updating the curriculum and assessing the respective courses. The curriculum

is designed to cover the necessary knowledge in each cluster, and additional courses are added as needed.

As a research institute rather than a university, WIS has a predominantly research-oriented atmosphere, which naturally influences the curriculum. Most courses are research-focused and highly specific, resulting in graduates with excellent research skills but potentially limited awareness of topics unrelated to their immediate research. For about half of the courses, the students can prepare a scientific report. In general, students like this approach but feel that some of the courses drill too deeply into specific topics and would appreciate a little more breadth in course content. For example, PhD students who completed their MSc degree at WIS have expressed difficulties in selecting new courses of interest to them. The Committee is very supportive of seminar-style courses and the use of scientific reports for grading. At the same time, the Committee does recognize that it can be hard to delve into a new topic at a deep level without all of the necessary backgrounds.

Some students have also raised concerns about the absence of introductory broad frontal courses. To address this, the Committee suggests incorporating courses in human and social sciences, such as societal issues like global warming, the history of science, and the opportunities and challenges of Israeli society. These courses can broaden students' perspectives and enhance the intellectual environment at WIS beyond research.

However, it is worth noting that WIS offers the flexibility for students to take courses at other universities. An example is the Hebrew University Faculty of Agriculture – a commendable offer, particularly with growing interest in climate sciences, which are not well represented at WIS. Other courses can be taken through online MOOC platforms like Coursera and Edx, in addition to the recommended courses by the Board of Studies.

There are some opportunities for students to be Teaching Assistants (TAs). In addition, there are opportunities for students to teach as instructors in the Youth Science School.

Nonetheless, none of the students we met received mentoring on writing a proposal for attaining a postdoctoral fellowship. Furthermore, the students were unaware of opportunities for these types of possibilities/awards. The Committee was also concerned that PhD students, who were about to graduate, were only just starting to think about what they would do next. The ability of labs to pay graduating students as postdocs for a few months after graduation appears to be positive. Yet, in reality, it solely serves as a 'safety net' that allows students to put off planning for the next step of their careers while the mentors benefit from the mentees added research efforts. The Committee would expect students to be thinking and planning for the year before they graduate and it is this Committee's intent to make the PIs and leadership aware of this noted cultural pitfall.

3.4 Teaching and Learning Outcomes

Teaching courses is not a requirement at WIS, but it is generally expected. From our meetings with senior and junior faculty, we learned that most faculty members volunteer to teach because it is perceived as being a critical aspect of their role as academics to educate (and to recruit) MSc and PhD students, as well as for the benefit of their own edification. WIS helps to incentivize this attitude toward teaching by providing an additional salary stipend for each course that is taught, and by maintaining modest teaching loads which typically involves

teaching 1 course (in one semester) every 2 years at approximately 2-3 hours per week on average.

While the Committee respects the voluntary nature of teaching, it recommends limiting the student need for external courses. However, these apparent weaknesses should not overshadow the excellence of WIS graduates and their subsequent professional success. The small class sizes contribute to effective teaching and intellectual stimulation. The rotation system, despite its organizational challenges, has been highly appreciated by students and is considered a valuable aspect of the training offered at WIS.

Teaching evaluation is conducted through a comprehensive questionnaire that students fill. Through a collaboration between FGS and the Davidson Institute of Science Education, there are interactive workshops to improve teaching skills and to learn how to integrate novel pedagogical approaches and technologies in the classroom. This training is available to those that choose to avail themselves of the opportunity and we learned that some faculty have taken this training, but certainly not all since it is not mandatory. The Committee suggests organizing a single-day workshop tailored to the specific teaching requirements of different courses for all faculty members and teaching assistants without prior teaching experience. It is also commendable that the EduCore team of the Science Teaching Department has established a Moodle system, and encouraged additional training to maximize the system's benefits. Furthermore, the Committee endorses the computerized system used to monitor and track students' progress throughout their milestones, including course grades, interim reports, and thesis approval. This comprehensive system ensures efficient monitoring of students' academic journey.

Overall, the Committee has observed the strong commitment of professors to teaching, particularly among recently recruited faculty members. This combination of factors bodes well for producing highly educated and trained MSc and PhD graduates.

3.5 Students

The Committee interviewed current MSc and PhD students, as well as alumni of both the Biology and Biochemistry programs. The Committee was deeply impressed with the quality of research to which students are exposed, and with the variety of courses offered. The infrastructure available to students to perform their studies is exceptional. Likewise, the availability of funds for international conferences, travel and registration is impressive. The networking opportunities provided for students are also extremely valuable, and include frequent speaking opportunities, and a plethora of seminars from exceptional international scientists. Importantly, the institute was very responsive to many of the issues raised in the previous evaluation round, and the Committee applauds the efforts to implement changes. The Committee noted a few issues during the visit that should be considered to further improve the student experience.

The Committee strongly supports the Institute's commitment to laboratory rotations, which are an excellent method for increasing the likelihood of success of student-lab matches. While three rotations are required before deciding on a thesis lab, in practice, it is frequently the case that students and lab heads agree early-on on a placement match. This results in some students unknowingly performing rotations in labs where they have no possibility of pursuing thesis research. This system also forces lab heads who have made pre-deals to host and train

students they may not be able to accept in their lab. As reported by several students, and some professors, this hidden marketplace is a source of anxiety to both sides and is ultimately not an efficient use of their time.

The information provided to the Committee states a 10% and 4% student attrition rate for PhD and MSc studies, respectively. This is commensurate with or better than attrition rates at many other universities. Nonetheless, a higher fraction of non-Israeli students do not complete their PhD studies than would be expected based on their representation amongst PhD studentship. 21.7% of PhD students are non-Israeli, whereas 37% of students who do not complete their studies are non-Israeli. A similar, but less significant outcome is seen with MSc students. The Committee recommends that the school investigate the reason(s) for attrition in general – and the differential attrition among international students, to identify where improvements can be made and proceed to implementing these.

During the visit, the Committee heard of incidents of alleged student mistreatment (and even bullying and sexual harassment) by laboratory heads. These incidents are apparently more prevalent among non-tenured faculty who are eager to demonstrate lab productivity. The problem appears to be not uncommon and was noted by some senior and junior faculty interviewed by the Committee, as well as all MSc and PhD students and some alumni. Importantly, students feel that they have no avenue to report their mistreatment or to obtain help. In the rare instances where the issue was raised with Feinberg School administration, students reported the responses to be unsupportive.

Importantly and to this end, the Committee raised the issue with Feinberg school administrators during the visit, and was pleased to learn about the great importance they attach to this subject. The evaluation Committee was gratified to learn of the solutions that WIS is already planning to implement. These include hiring an ombudsperson, instituting a web platform where students and postdocs could fill in an anonymous contact form to file a complaint, and introducing a monitoring system by in-house social workers and a clinical psychologist, combined with a mentorship training program for young faculty (dubbed "SOS Induction"). Importantly, leadership should take in consideration that it was evident during the visit that many students are unaware of their options; students either lack awareness of these tools, or they do not use them because they do not believe there will be any consequences for bad behavior or, worse, they fear retribution. It is hence vital that students be aware of what support is available to them – who is the disinterested party they should contact if there is a problem? The Committee strongly recommends continuing to taking all possible means to mitigate and eliminate student mistreatment, and views open and frequent communication about issues of sexual harassment, mistreatment, and bullying at all levels of instruction at the Institute as an imperative.

The Committee noted that students do not have formal exposure to career counseling. It is unclear if WIS has an office to link students with jobs, provide interview skill training, and so forth. Students earning MSc and PhD degrees have many non-academic opportunities for post-graduation employment, and it would be very useful to have a centralized office, as well as periodic workshops that introduce students to such alternative careers (industry, teaching, science legislation, patents, etc.). The Committee was told about a Biotech club organized by students, which could be consolidated in developing a cohesive non-academic advisory program. In addition, the Alumni of the Life Sciences programs could be tapped to be a

resource for current trainees. The students indicated that “soft skills” including scientific writing and presentation skills were part of the graduate program. This is important and useful in pursuing research based as well as other health science relevant careers.

Students also reported that they do not have access to information about postdoctoral fellowships for Israeli students studying abroad. The Committee believes that central curation and advertising of such opportunities would be valuable, as postdoctoral fellowships are prestigious, and having funding (e.g., having assured a postdoctoral fellowship to sponsor their future training) provides access to many more laboratories. Such fellowships also can provide supplemental financial support. Ideally, this information would be made available early in the training period because of grant deadlines.

The Evaluation Committee met with several alumni. These professionals all lived nearby and were contacted with the request to come to the session. They indicated that they each maintained a relationship with their mentors or with the department, but were unaware of an alumni association. They indicated that they thought the Feinberg Graduate School maintained a database of alumni. We encourage WIS and Feinberg School to maintain a database of alumni that they tap into to connect with current trainees interested in diverse careers. The alumni we met were clearly intrigued by the opportunity to share their experiences with current students.

3.6 Academic Faculty and Human Resources

There are approximately 250 PIs at WIS, distributed among 5 Faculties. Well over 100 PIs belong to the two “life science” Biology and Biochemistry Faculties, making this the largest group at the institute. The President explained that the most important criterion for recruitment is scientific excellence and that WIS does not usually have area-specific, targeted hires. It is instead more opportunistic; identifying at the departmental level the best candidate in any field that aligns with the disciplinary structure and critical mass of excellence within the two WIS life science Faculties. This was described as a bottom-up approach that is distinct from other peer international institutions, such as the Max Planck.

Approximately 10-15 new faculty members are recruited each year in all fields. It is generally expected that Israeli-trained candidates have completed international postdoctoral research to increase the diversity of conceptual and methodological approaches. Start-up packages are very generous, and expected to last at least 5 years after recruitment but can be carried on longer; they are internationally competitive and include a lab manager, equipment, and expendable funds for research. Graduate student stipends are also covered by the institution itself (2 years for Master’s students and 4 years for PhD students, with short extensions possible at the PI’s expense). In cases where specialized equipment is purchased, there may be a need for a staff scientist position to operate the equipment or facility and this is also provided by the institute. While such major lab equipment is usually purchased at the point of recruitment, there is an annual major equipment funding competition at the institute that requires an application. Faculty members, especially past tenure, were appreciative of this extra opportunity for their infrastructure needs but commented on how this process is not very transparent, with mostly no feedback provided for unsuccessful internal equipment grants. We learned from the senior administration that the main criteria for a successful application were that the equipment was not available at WIS, that it would be shared among

groups of PIs, and that it was pushing the boundaries of science. These are laudable criteria, but we recommend making these decision-making criteria written into a policy (e.g., transparent and clear process) that provides equal opportunity for all faculty members.

A mentor is assigned to new PIs and there is a formal onboarding process to learn the system of different offices and facilities, both scientific and non-scientific, at the Institute. Peer groups are also available for new PIs (both at WIS and in collaboration with EU groups, e.g. EMBO early career training course), and this seems to happen organically. The Committee was very impressed with the quality of support for new faculty members to join the WIS community and campus life, which includes heavily subsidized housing, childcare, recreation, and language support services. As one faculty member commented: “Scientific community life is much stronger than anywhere else.”

Recruitment, appointment, and promotion policies are made available to all faculty, and in our meetings with PIs, we heard that the process and expectations for tenure and promotion to Associate Professor are transparent. There is also a midterm pre-tenure evaluation (including SAAC feedback) for all faculty to help prepare them for the tenure process. There was a sense among faculty members that the senior administration cares about their success, and that the last two decades’ average tenure rate of ~90% (as opposed to the earlier 50% rate) was a comforting statistic to make the process less stressful. Meetings with the promotion committee are relatively frequent and informal, and the one-to-one mentoring works very well. There is trust in the tenure process because the initial recruitment is very rigorous, the expectations are generally the same across the entire institution, and faculty members have multiple opportunities for feedback as their tenure file makes its way through the review process (a life sciences committee and a parallel institutional multidisciplinary committee). Nevertheless, the Evaluation Committee learned that because there is a WIS (institutional) committee, the information in the “promotion package”, prepared by the PI seeking promotion, is too specific to a certain research field. This could undervalue the candidate’s achievements in the eyes of the WIS-level committee which includes professionals from different faculties. The Evaluation Committee recommends that there is clear guidance and training for PIs to provide narratives in their tenure package that are accessible to a multidisciplinary panel, since committee members outside of the life sciences are also reading these documents.

In contrast to the tenure process, promotion to full professor was considered to be somewhat opaque, and faculty members raised concerns about not understanding the timing and the expectations. The Committee noted, however, that feedback to the administration has resulted in a re-evaluation of this process, and the Committee recommends that the expectations on timing and research requirements for promotion to full professor are codified.

While pedagogical training is offered to new PIs, mentorship and graduate supervision training for new, and established, PIs are rather limited. During our meetings, faculty members and graduate students raised concerns about the behavior of some PIs toward their students, which included anonymized examples of sexual harassment and bullying. Importantly, there have been significant improvements over the years in changing the “24/7 research” culture at WIS, and we heard from several people that there is greater awareness of the importance of work-life balance by the administration, for which this Committee would like to encourage

leadership to continue with its implementation. This is because it was evident that this undercurrent continues to exist, to some extent, leading to instances of abusive behavior by PIs toward students.

The SER describes the WIS sexual harassment policy and the Feinberg School grievance process for reporting harassment and bullying. We learned from the Feinberg School Dean at the closing meeting, that WIS will soon announce the appointment of an Ombudsperson that will serve the Institute's community of faculty, staff, and students. The Committee strongly supports the creation of this new position. Furthermore, the Dean indicated that they are working on an "SOS Induction" program for PIs that includes a focus on mentorship. The Committee recommends that this program develops a rigorous code of conduct for all WIS faculty and staff and that it is mandatory for all incoming PIs within their first year at WIS. These are all worthy approaches to further address inappropriate and abusive behavior and are strongly encouraged by the Committee. As importantly, a more robust means for communicating directly to students and postdoctoral trainees is needed so that the aspired transparency and awareness level of these initiatives is achieved.

The WIS is in the enviable position of having a very strong community of staff scientists among the PI labs and core facilities. Indeed, in the Department of Life Sciences Core Facilities there are 60 units with 270+ scientists and technologists (>75 have their PhD). This level of staff support for research operations and training for students and postdocs is beyond excellent. Faculty members also applauded the level of administrative support for their labs and courses. We heard that other than PIs having to occasionally monitor the levels of funding available in their own research accounts, the department support staff basically "take care of everything."

3.7 Diversity

The Committee noted a commitment in the Life Sciences program to diversity among students and faculty, including the appointment of a specific office to handle related issues. The Committee was told of several new institutional initiatives at inclusivity and culture awareness to make Israeli Arabs, ultra-orthodox Jews and first generation of higher education individuals feel more welcome. The goal is that some trainees of these on-campus programs will spread the word and feel comfortable to apply to the MSc program. This initiative includes public acknowledgment/celebration of holidays of the diverse religions among the WIS community. We were told of several initiatives to recruit Arab students, starting in high school for summer research experiences, and college internships. WIS indicated tremendous success in this program leading to successful applications for the MSc program by increasing numbers of Arab students since the initiation of this program. In the future, given the recently signed agreements with UAE, there may be Arab students and postdocs coming from those countries. The WIS Diversity website,² conveys laudable ambitions of the Institute, which the Committee hopes can be translated into concrete action that will impact the scientific community at WIS.

Nonetheless, there appears to be room for improvement. There are currently only 4 Arab faculty members on the WIS Faculty, with two in Life Sciences, and only 3% of students are Arab. The Committee heard that Arab students are dissatisfied with their small numbers and reported a sense of isolation. Students appreciated the provision of on-site housing, rather than commuting from their family's homes. There was no mention of Haredi or Ethiopian

² <https://www.weizmann.ac.il/sites/Diversity/home>

minorities among the faculty or student cohorts in the reports provided to the Committee. The Committee encourages developing programs to encourage the recruitment of students from these communities.

It is laudable that 53-62% of students and postdocs are women. However, it appears that about 25% of the faculty members are women, with more presentation at the lower ranks. No explicit programs/goals to increase women faculty were noted.

There is a multipronged program for promotion and mentoring of women students, but most of the women PhD graduates do not go abroad for postdocs, which is a common standard for recruitment into an academic position in Israel. Another program provides support for the trailing husband so that the woman can accept an international postdoc position. WIS has initiated a number of programs to provide an international co-mentor for an Israeli postdoc mentor of a woman researcher to facilitate acquiring the international training requirement for an Israeli academic position; it is an open question whether other Israeli colleges and universities will accept that alternative credential for women unable to leave Israel for the postdoctoral training.

Although there is a program for 3 months' maternity leave for trainees, we were told that this is inferior to other universities in Israel, where students have a total of six months paid leave. One student indicated that she had 3 months of unpaid leave after the conclusion of the paid period.

International origin is high with 9% for MSc students, 22% for PhD students, and 64% in the postdoctoral program. No data was provided about how many international (non-Israeli) faculty members there are. The Committee heard from international students that their medical insurance does not cover procedures and treatments available to Israeli students. Senior leadership indicated that there are emergency funds available for this type of need, but neither the International Office nor the Insurance administrator had provided that information (or support) to the international trainees who made inquiries.

WIS provides a residential community for its faculty and trainees which is a resource rich with subsidized daycare facilities, schools, shopping, playgrounds, and day camps for young children. This promotes collaborations as well as being very family-friendly. The WIS scientific community is very fortunate to have this benefit, unique to the universities the Evaluation Committee has visited.

There is a new non-obligatory program for training in unconscious bias. In other institutions, these training sessions are required annually by all. Other institutions require annual training in bullying, harassment, and ethics. There is no need to reinvent these programs, as they are widely available and offered online, yet it is important the WIS implements these.

3.8 Research

WIS is "committed to excellence" as the primary criterion for recruitment of faculty, postdocs, and students. The results of this "excellence-seeking" approach were obvious to the Evaluation Committee in the report provided by WIS, the updates to the report submitted subsequently, and during the Committee's visit to WIS. WIS faculty members are highly

successful at receiving noteworthy, competitive national and international grants, including from the ERC, the ISF, and more.

WIS ranks notably highly in multiple international research metrics including in normalized research publications for faculty, citation rate, top-cited publications, and patents awarded, and the WIS scientists collaborate nationally and internationally and stand out for the large number of publications with regional and international collaborators. WIS also stands out amongst universities in Israel for many reasons, including maintaining extensive internal and external processes to evaluate all aspects of the Institute, including keeping up with the latest technological and conceptual approaches to research, and adapting to as well as implementing the lessons learned. The ongoing review of programs by the SAAC, an external advisory committee that counts with internationally-recognized experts on the fields of WIS research, as well as an internal institutional evaluation committee, which are highly commended.

The Institute does an exceptional job at recruiting and supporting postdocs from Israel as well as from all over the world. The Evaluation Committee noted that the leadership team provides extensive support for postdocs as well as feedback to faculty and mentors to ensure that trainees at all levels enjoy an optimal experience. A new, and applauded, initiative is that mentoring is now being considered as a key aspect of the promotion process, which underscores the emphasis placed by the Institution for assuring a proper way for mentoring. Furthermore, very recently, WIS and the Max Planck Society created a joint postdoctoral program, which is expected to further augment the preparedness of trainees and the types of collaborative projects being conducted by these researchers at WIS. The Max Planck Institutes (of the Max Planck Society) are some of the most respected scientific research institutes in the world. Up to 10 postdocs will be accepted to the joint program each year. The postdocs will be provided funding for four years and spend two years at each institution. This innovative program will provide another means of attracting top trainees to WIS and allowing WIS trainees unique and exceptional opportunities to work throughout the Max Planck Institutes and attain international exposure.

Senior academics noted that the large number of exceptional core facilities (25 cores for the life sciences) provide state-of-the-art equipment, overseen by staff scientists and numerous technical staff, who are all experts on the technological services being provided. It is important to note that the research faculty is supported by Core Facility personnel at an almost 1:1 ratio (1:0.9). There are also generous startup packages for new faculty, which cover required specialized equipment; moreover, senior faculty can access specialized Institutional grants or other sources of WIS support to purchase highly specialized equipment that is not offered by the Core Facilities. This commitment to expertly staffed cores and state-of-the-art equipment throughout the Institute greatly facilitates high-quality research and is surely a key aspect for the enormous success of WIS' internationally-recognized research.

All Core Facilities are centralized, and the information available to researchers and trainees about the Core services is very well organized, and is constantly updated, disseminated in monthly lectures, and up-to-date web based means. The Core facilities provide not only training and supervision of students and postdocs, but also offer a highly skilled and intellectually engaged collaborative atmosphere that facilitates the multidisciplinary approaches to research that the WIS faculty members are known for. For example, all new PIs

are asked to give a lecture to the core facilities so that the core personnel can understand the needs of the new recruit and advise them about available relevant services (see section 3.9 for further detail).

In conclusion, the Evaluation Committee's high expectations for research excellence were met, and even surpassed!

3.9 Infrastructure

The WIS is a world-leading research institution that rightfully prides itself on the diversity and strength of its infrastructure and research facilities. The Committee was genuinely impressed with not only the state-of-the-art Core and laboratory research infrastructure made available to the Life Sciences (and other) research groups, but also with the Institute's willingness to source, obtain, and build up new facilities for new hires, new projects by tenured PIs, and especially for collaborative proposals. For example, WIS faculty benefit from an annual call for new research equipment institute-wide, with the more interfaculty collaborative proposals receiving a priority for funding allocations. Thanks to the flat administrative hierarchy, research equipment can also be sourced on a case-by-case basis by appealing to the Institute's administrators as researchers shift and update their project portfolios to move to the leading edge of their disciplines ever-more during their tenure at WIS.

The diversity and strength of the Institute's 60+ core facilities are cutting edge, with many unique and advanced models purchased at the true cutting edge of existing and developing technologies. In turn, the Core Services personnel ratio of 0.9 (relative to the Life Science Faculty's size) is higher than many other comparable European and North American research institutes' and university's ratios. Tenure-track PhD-level staff scientists head the core units' service teams, with 20% of their own time allocated for publishable research to ensure tenure and promotion in these positions.

The Nancy and Stephen Grand Israel National Center for Personalized Medicine (G-INCPM) is an advanced research facility that intends to provide Israeli academic, medical, and biomedical industry researchers with access to state-of-the-art genomics, protein profiling, drug discovery, and bioinformatics research platforms and know-how. However, non-WIS users are charged full price while usage is extensively subsidized for WIS scientists. We were told that so far only one-third of the users are non-WIS. This may relate to the high price offered to external users. G-INCPM also provides occasional seminars by outside experts, which is advertised on their website, but not by emails to outside campuses. It is recommended to nationally advertise all professional lectures and seminars related to available methodologies, and make them available via online and offline recordings. Furthermore, WIS is part of the newly formed Israel Research Core Foundation consortium, currently funded by a 3-year Ministry of Science grant, and bringing together 8 research universities across the country. This collaboration is critical and commendable, it is a means to share equipment and resources nationally, and we hope it also leads to the purchase of new pieces of equipment to expand this resource. The WIS Core's website also directs researchers to consortial EU facilities available to Israeli scientists.

Space allocation for research labs is made on a case-by-case basis, with externally (ERC) funded groups able to expand their space usage as required by the current grants. At the same time, some space limitations have been brought up by faculty, and new research labs are

typically not (yet) set-up for new PI recruits at the time of their arrival. This, however, may at the same time allow for active and in-situ design of the research labs as the PI settles into her/his new research milieu.

When we asked students and postdoctoral trainees why they chose WIS, the most common response was the quality of the resources available. The students had no complaints about lecture rooms and instructional facilities, including teaching labs. Similarly, they were highly enthusiastic about the library's overall services, online journal accessibility, and its 24/7 opening hours for studying and socializing. Finally, requested and required software and application packages are made readily available for students on a case-by-case basis as needed for specific experimental studies.

Section 4: Conclusions and Recommendations

4.1 Conclusions

The Committee was impressed with the WIS and its commitment to excellence. This research institution is unique in Israel and attracts highly motivated gifted individuals from around the world. The facilities and infrastructure are outstanding. The faculty members, administration, and students have tremendous strengths and potential for even more success. WIS has created a residential and work community that is unique in Israel. Researchers have the freedom to pursue their ideas with access to the best equipment. Resources available are generous and when needs for specific costly equipment arise, if the PI is successful in the annual open grant call, WIS can provide the machinery. The faculty have employment stability and a very high rate of tenure. The faculty and student body have a high representation of women, but minorities are poorly represented. There are initiatives to provide science education in local high schools and to bring students to WIS for brief internships or other opportunities.

A few problems were identified during the visit and these are listed in the Committee's recommendations. The most significant one is at the top of the list of essential recommendations: How students are treated by faculty.

4.2 Recommendations

Essential

The Institution should continue to further develop, implement and enforce a rigorous code of conduct for all WIS faculty, students, and staff.

The Institution should provide obligatory training annually for unconscious bias, bullying, harassment, and ethics (as opposed to solely that for preventing sexual harassment).

At the Institution level, develop a mandatory mentorship and graduate supervision training program for all PIs to be taken in their first year at WIS.

Students should be aware of what support is available to them – they should know who is the disinterested party they should contact if there is a problem.

Add additional frontal courses to the Feinberg graduate school, and minimize students' need for external courses.

The Institution should provide health insurance coverage for all international trainees which is comparable to that offered for Israeli students.

Important

The Institution should make available to all faculty the decision-making criteria for the annual major equipment grant competition.

At all levels, a robust communications strategy should be developed and implemented, to communicate institutional policies and initiatives to all faculty members, trainees, and staff. The Committee found that there are some wonderful resources that the trainees (students and postdocs) just do not know about.

Formalize career development for all trainees, with information about non-academic career opportunities.

At the Feinberg School level, further effort should be made to operate the system of MSc rotation allocation in a more transparent and equitable manner, and to find ways to limit futile rotations (cases where the professor and another student have already matched).

The relevant Faculty leadership should develop clear guidance and training for PIs on how to provide narratives in their tenure package that are accessible to a multidisciplinary (institutional) review panel.

Desirable

At the ExCLs level, efforts should be made to provide access to key concepts and readings for the topic in the first 2-3 lectures of the seminar-style courses, such that all students have some grasp of the foundational concepts.

Feinberg School should investigate/analyze the reason(s) for attrition in general – and the differential attrition among certain groups, for example, international students, to identify where improvements can be made.

The relevant Faculty leadership should articulate and communicate expectations on timing and research requirements for promotion from tenured associate to full professor.

A highly developed WIS alumni database should be generated and made available to assist current students in understanding different job tracks, for networking, fundraising, and more.

Signed by:

Prof. Lynne Regan

Committee Chair

Lynne Regan

Prof. Joseph Buxbaum

JB

Prof. Edna Cukierman

Edna Cukierman

Prof. Orna Elroy-Stein

Orna Elroy-Stein

Prof. Mark Hauber

Mark Hauber

Prof. Bruno Lemaitre

Bruno Lemaitre

Prof. Carol Shoshkes Reiss

Carol Shoshkes Reiss

Prof. Shai Shaham

Shai Shaham

Prof. Vincent Tropepe

Vincent Tropepe

Appendix I: Letter of Appointment



October 3, 2022

Prof. Lynne Regan,
Institute of Quantitative Biology, Biochemistry and Biotechnology,
Edinburgh University
UK

Dear Professor,

The Israeli Council for Higher Education (CHE) strives to ensure the continuing excellence and quality of Israeli higher education through a systematic evaluation process. By engaging upon this mission, the CHE seeks: to enhance and ensure the quality of academic studies, to provide the public with information regarding the quality of study programs in institutions of higher education throughout Israel, and to ensure the continued integration of the Israeli system of higher education in the international academic arena.

As part of this important endeavor, we reach out to world renowned academicians to help us meet the challenges that confront the Israeli higher education by accepting our invitation to participate in our international evaluation committees. This process establishes a structure for an ongoing consultative process around the globe on common academic dilemmas and prospects.

I therefore deeply appreciate your willingness to join us in this crucial enterprise.

It is with great pleasure that I hereby appoint you to serve as chair of the Council for Higher Education's Committee for the Evaluation of **Life Science and Biology** departments. Other members of the Committee will include: Prof. Joseph Buxbaum, Prof. Edna Cukierman, Prof. Orna Elroy-Stein, Prof. Mark Hauber, Prof. Bruno Lemaitre, Prof. Carol Shoshkes Reiss, Prof. Shai Shaham, and Prof. Vincent Tropepe.

Ms. Anat Haina will be the coordinator of the Committee.

I wish you much success in your role as a member of this most important committee.

Sincerely,

Prof. Edit Tshuva
Vice Chair,
The Council for Higher Education (CHE)

Enclosures: Appendix to the Appointment Letter of Evaluation Committees

cc: Dr. Varda Ben-Shaul, Deputy Director-General for QA, CHE
Dr. Liran Gordon, Senior Advisor for Evaluation and Quality Enhancement
Ms. Anat Haina, Committee Coordinator