



# EVALUATION OF LIFE SCIENCE STUDIES

## BAR ILAN UNIVERSITY

COMMITTEE FOR THE EVALUATION OF LIFE SCIENCE STUDIES IN  
ISRAEL

March 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 of<sup>1</sup>:

- **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 System 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;

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<sup>1</sup> 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 Committee was overall impressed by the Faculty of Life Sciences in Bar Ilan University. The relationship between the higher administration and the Faculty of Life Sciences, and similarly, the recent and continuing investment in the Faculty of Life Sciences, are strong.

The onboarding of new faculty (with regard to having their space essentially ready and equipped upon arrival) is efficient and commendable. The competitive size of their start-up packages, and the support they receive throughout their progression as junior faculty through to tenure, are all outstanding. The Committee was also impressed by most of the core facilities, and the faculty stated that efficiency and fees to use them were very reasonable. Such facilities underlie successful state-of-the-art research, and the Committee greatly appreciates that the salaries of the Core Facility Managers - research staff who operate core facilities that are used by multiple users are covered 100% by the institution. It is something to be proud of.

While the practice of annual mentoring and faculty reviews are commendable, the Committee was concerned that teaching statements and reviews of any type are not included in the evaluation. Such focus on research is out of step with current global trends of research-based teaching excellence. Similarly, it seems that less value is given to outreach and public engagement activities at the junior faculty level.

The Committee strongly recommends that all teaching for graduate students be in English as it is the *de facto* language of science. This notion is also shared by the majority of full-time faculty that the Committee met with. The Committee strongly endorses a move to having all graduate courses in English. If BIU intends to attract more international students, postdocs,

faculty, and achieve a higher international recognition, switching to teaching in English is essential.

## **Section 3: Observations**

### **3.1 The institution and the parent unit**

The Committee met with the Rector and Vice Rector of the University and thought that the leadership of the University and the Goodman Faculty of Life Sciences work very well together - there appears to be a mutual respect, and the institution understands the needs of the Faculty. The goals of the institution include excellence in teaching and research, and the administration and faculty at all levels are in strong agreement towards these goals. The Rector's office has assigned a dedicated administrative staff for the Self-Evaluation Report (SER) process, and this position will continue to serve for annual reviews and reflections on all the Faculties' performance and plans. The Committee views such commitment and collaboration as excellent.

### **3.2 Internal Quality Assurance**

The Committee endorses the stepwise structured process of self-evaluation that Bar Ilan has developed. By dedicating a specific position for this purpose, the seriousness of this commitment is demonstrated.

The critical points raised by the previous CHE committee were fully addressed, one by one. Moreover, the Faculty used the CHE current self-evaluation opportunity to further improve itself even beyond the previous committee's recommendations. The Committee appreciates the fact that the Faculty was very well aware of its weaknesses and the fact that its leadership invested energy and money to address in a satisfactory manner most of the points.

One of the main criticisms of this Committee is the lack of complete supporting quantitative information that was submitted in the SER (e.g., percentage of each type of final exams, post-doc numbers, number of students in each study track, teaching evaluation questionnaire). A comprehensive set of data is vital - on students, postdocs and faculty. There were some errors in what was provided, and the Committee had to request missing data - both before and during the visit. An example of such an error is the significant discrepancy between the students numbers provided in Table 1 and Table 2.

Another point of concern is the high dropout rate of MSc (with thesis) and PhD students (>15%; Table 6 of Supplementary material). While the high dropout rate of BSc students due to transfers to Med School is understandable, the Committee suggests enhancing the rigor of 'admission on probation' to graduate programs.

The Faculty evaluated its overall performance in Internal Quality Assurance:

(1=unsatisfactory, 2=needs significant improvements, 3=needs minor improvements, 4=satisfactory, 5=highly satisfactory)

	1	2	3	4	5
					X

The Evaluation Committee evaluated the Faculty's overall performance in Internal Quality Assurance:

	1	2	3	4	5
				X	

The strong relationships and trust amongst the faculty members, and between them and the institution heads are a strength, and likely have helped to solve arising problems in an informal manner. Such informal discussions can be good and productive. However, we recommend keeping track of such things, including the transparency of decision making etc. It is vital to have a transparent and open process, to increase diversity and participation, because 'informal' decisions may end up with 'those in the know' benefiting. For example, promotion procedures and policies used to be unclear to faculty members in the past, and now they are institutionalized, clear, and transparent. All areas should benefit from following a similar revision.

### 3.3 The Department/Study Program

The Faculty of Life Sciences at Bar Ilan University offers undergraduate BSc degrees, as well as multiple graduate degrees, including an MSc "without thesis" degree, a standard research-based MSc program, an honors MSc program (PSAGOT), and a PhD. Collaborative MSc degrees with the Volcani Institute, and in Computational Biology are also offered. The Committee was largely satisfied with the core courses of instruction, and the variety of elective classes offered.

The students with whom the Committee met during the visit were positive and excited about their education. We noticed some inconsistencies between what the undergraduate students told us about the courses, and what the faculty discussed regarding exams and other course evaluation methodologies.

Specifically, the undergraduate students told us mid-term and final exams were often in multiple choice format, and that later, there was time with TAs to go over the answers. The faculty spoke more of short form or long form written answers. The latter also encourages writing and communication strengths in addition to mastery of facts. The Committee emphasizes the importance of learning how to write by receiving formative feedback before the final assessment. We acknowledge that it is time consuming for the faculty, but we think that training TAs in this providing constructive feedback would be beneficial.

The Committee noted that courses at the graduate level are often taught in Hebrew, and that graduate theses can be written in Hebrew. While the Committee is sympathetic to the idea of preserving the cultural and national identity of the institution, it nonetheless recommends that all instruction be in English at the graduate level, and that theses be written in English. The Committee views this as important on several levels: English instruction will allow students to pursue training outside of Israel with greater ease (at the postdoc level, for example). Such instruction should also help with recruiting international students and faculty to the university. Finally, since the scientific literature is largely in English, the ability to fluently read the literature would enhance graduate student training. Scientific writing is also important for students pursuing science endeavors after graduation, and the Committee believes encouraging thesis writing in English would help student proficiency also in non-academic careers. Graduate students should be encouraged to attend international conferences and present their research in English.

The value of having more or all graduate courses in English as the default is extremely important. It is essential to bring Bar Ilan University to the next level in the international scene. One possible concern of focus on English for graduate students and possibly even for some advanced undergraduate courses is, of course, that more students will struggle with learning or using the language. This is discussed elsewhere in the report, but the Committee was very impressed with the efforts that are made to support individuals for whom Hebrew is not their first language, be they recent immigrants, or from minority communities in Israel. Obviously, the same support can be done for students struggling with the English language.

The practice of identifying top undergraduate students and encouraging them to start MSc in their final BSc year, and similarly then PhD, seems effective. Although it does not encourage students to experience other research environments and institutions, the Committee appreciates that it works both for this student demographic and the faculty, thus it benefits the faculty's research achievements. We do not recommend any changes to this practice.

The Committee thought that the non-thesis MSc program for people who have active job positions was advantageous for them, as they expressed their strong appreciation and high enthusiasm. The students mentioned the advantage of flexibility, that allows them to study while juggling with their jobs. Therefore, availability of course material online is especially valuable to this group. Conversely, the Committee was somewhat worried about the lack of curricular structure of this program - but appreciated the need for the individuals taking this program to have flexibility to take courses that match their interests and constraints. This group of special students would benefit from a specific faculty advisor for guidance regarding their individual study program. With that being said, it should be noted that the Committee considers the non-thesis MSc program as completely different from the research-based MSc program, thus it should not be combined for statistical purposes as presented in Table 2 and Table 6.

And on another note - alumni who were interviewed relayed to the Evaluation Committee that courses in (big) data analysis were important, as many aspects of current biological research require mining of large data reserves of different types. The Committee encourages the Faculty to develop a course(s) addressing this issue.

Furthermore, the Committee learned that PhD students take undergraduate courses in their specialist area. This practice seems inappropriate, and specific courses for graduate degrees should be provided.

The Faculty evaluated its overall performance in Study Program:

(1=unsatisfactory, 2=needs significant improvements, 3=needs minor improvements, 4=satisfactory, 5=highly satisfactory)

	1	2	3	4	5
		X Bsc	X Msc	X PhD	

The Evaluation Committee evaluated the Faculty's overall performance in Study Program:

	1	2	3	4	5
			X		

The Faculty rated its study programs differently, depending on the level of studies (BSc, MSc, and PhD), and the Committee appreciates the different strengths and weaknesses of these programs.

### 3.4 Teaching and Learning Outcomes

The Committee endorses the three independent ways to evaluate teaching described in the SER: by student surveys, occasional classroom visits, and interviews of selected students by the Dean. However, it is important to provide more information on student assessment methods (percentage of each type of final exam, percentage of courses with mid-term exams, and other assignments).

It was unclear how a single Faculty committee can assess both curricular issues (new courses, syllabi updates), and teaching issues (final exams, student failures, student support, assessment of teaching quality by occasional visits). In order to address the depth of responsibilities the committee has, more data would have been desirable. The Evaluation Committee was unclear how the different units of this committee were allocated, and how they worked.

The Faculty did not provide in the SER sufficient detailed information on the content of the various tracks (e.g., biology, biotechnology, bioinformatics) and the learning objectives of each of these tracks. Although many of the Faculty's researchers have multidisciplinary orientation, this is not necessarily translated in the study program of undergraduates' tracks.

While it seems that many students are attracted to bio-med oriented careers, the professors do their best to open the minds of the students towards other research and the broadness of life science career opportunities.

The Committee endorses the existence of a specific track for excellent students (PSAGOT). The Committee also endorses the existence of additional support for students who require it.

The Committee learned that the Center for the Advancement of Teaching (CAT-BIU) promotes teaching quality by providing techno-pedagogical and exams writing workshops. Attendance is mandatory only for new Faculty. However, senior Faculty told us during the visit they would like to attend but never find the time. The adjunct faculty told us they are not offered initial training nor advanced workshops by the CAT-BIU. Therefore, this Committee recommends adding (to the teaching responsibilities list in the 'Teaching Regulations' document) which is relevant to all Faculty and adjuncts a requirement to attend several mandatory workshops.

Teaching appears to not be a main criterion for faculty promotion, unless the teaching survey score is very low. The Committee was concerned that nothing about teaching was required on the annual review forms for junior faculty. The adjunct faculty teaching should also be evaluated. Some in this group of faculty members raised their desire to receive feedback and improve their teaching if necessary. The Faculty should make sure teaching excellence is evaluated and nurtured regardless of its relation to promotion.

The Faculty evaluated its overall performance in Teaching and Learning Outcomes:

(1=unsatisfactory, 2=needs significant improvements, 3=needs minor improvements, 4=satisfactory, 5=highly satisfactory)

	1	2	3	4	5
			X		

The Evaluation Committee evaluated the Faculty's overall performance in Teaching and Learning Outcomes:

	1	2	3	4	5
			X		

It was clear to us that the full-time faculty members and adjunct faculty both have a strong dedication to meeting the teaching needs of the unique student body of BIU. An adjunct faculty member said that a teaching evaluation would be appreciated, so they could assess how they are doing. For both full-time and part-time instructors, class visits by faculty to observe (and provide constructive feedback) on teaching is recommended.



### 3.5 Students

The Committee interviewed students in the BSc, MSc, and PhD tracks, as well as alumni. All were uniformly positive about their experiences, and all commented that the university provides a warm, family-like environment conducive to learning and research. The Committee was impressed with the commitment of the Faculty of Life Sciences to the wellbeing of the students, and with the accommodations made for those with different needs. Courses for non-native speakers to promote study of and in the Hebrew language, as well as personalized assistance in courses by faculty and teaching assistants, were lauded by the Committee. Likewise, the Committee was impressed with the support given to students with families, for example extra time to schedule exams and complete studies for students on maternity leave.

There is some attrition in student numbers between those enrolled in the BSc and MSc tracks, and the MSc and PhD tracks. Only 35% of students completed the BSc in three years (from the five years of data presented); 42% of the entering group of students take longer than the dedicated three years to complete the degree. The remaining 19% of students do not complete the undergraduate degree. This percentage is lower among graduate students. The Committee recommends that the Faculty track the numbers of 'dropouts' versus 'transfer to medical school' to develop strategies to assess the reason(s) for delay or attrition and properly address these issues.

The Committee was also surprised that the admittance ratio for undergraduate applicants was very high (>80%) and consequently not very selective. These numbers are perhaps reflected in the extremely high percentage of students who are admitted on probation (much higher than the CHE permits, i.e. 10%). The Committee is understanding of accepting a few students on probation if they are entering from unusual backgrounds and providing them with the support needed to flourish. The data provided on this point were inconsistent with respect to the written description of "on probation" criteria. This discrepancy should be clarified and the percentage of admittance on probation should be lowered to match nationally required values.

The Evaluation Committee noted that Bar Ilan students would benefit by the development and implementation of a robust program to prepare students for their paths after graduation. Regarding career planning support, some possibilities that the Evaluation Committee suggests would be useful to include exposure at early stages to the merits of non-medical, research-oriented careers in the life sciences, both within and outside academia. While ad hoc career planning is available to a limited extent for all students, the Committee strongly recommends a more formal approach to expose students to information about non-academic life-sciences-related careers (biotech, agri-tech, science policy, patents, communication, teaching, etc.). For example, regular workshops and hiring personnel who can offer advice on non-PhD & non-medical careers should be strongly considered. In addition, workshops on preparation of the *curriculum vitae/resume*, on networking, on interview skills, etc. are potentially valuable for students finishing all degrees. The alumni of the Faculty are another valuable resource to include in such career surveys and open days. The Faculty is encouraged to maintain close ties to their alumni for this and many other reasons.

The Committee noted that few PhD students pursue postdoctoral studies abroad. For some students interviewed and who were interested, family obligations precluded travel. To

strengthen the program, the Committee supports the recently established initiative of mentoring families about the merits of international postdoctoral work. Since most of the faculty pursued international postdocs, this collective experience also serves as an invaluable resource.

The Faculty evaluated its overall performance in Students:

(1=unsatisfactory, 2=needs significant improvements, 3=needs minor improvements, 4=satisfactory, 5=highly satisfactory)

	1	2	3	4	5
		X			

The Evaluation Committee evaluated the Faculty's overall performance in Students:

	1	2	3	4	5
			X		

The Committee believes that the strong communal and family-like environment fostered by the Faculty is a major strength of the program. The students are happy and accomplished. A number of suggestions for improvement are proposed, mainly around the attrition and delay in graduation, and career advice.

### 3.6 Academic Faculty and Human Resources

BIU excels in its support of academic faculty. The Committee was enormously impressed by how research and the various research-support positions are thoughtfully structured, developed, promoted, and supported. The Committee also noted how administrative leaders drive by example and have an “open door” approach, as well as how open to feedback and to potential policy changes they all are. For example, it was mentioned how promotion policies are transparent overall and open in particular to added (fair and sufficient) time for personal circumstances such as extending the tenure clock for childbearing etc.

BIU provides generous, nationally competitive research start-up funding for new PIs, which includes \$800,000, five years of graduate student fellowships (4 MSc + 3 PhD), 50% FTE Lab Manager salary, and a first year of teaching release. Nevertheless, it was unclear what the starting faculty had to cover with the \$800,000. The Vice-Dean of Infrastructure has implemented a laudatory model of pre-renovation of available lab spaces, so that when a new faculty member is hired, there is very little additional fit-out that is required. This results in a short time to completion of 6 months or less on average, from the time the newly hired faculty

member starts their new position. The recruitment of new faculty was identified as a bottom-up process, with the best overall researcher being appointed in the annual search processes, though teaching and research gaps existing within the Faculty are also taken into consideration when selecting candidates for the job interviews.

The Committee also learned from the Vice-President of Research (VPR), who is also a life science faculty member, that the VPR portfolio at BIU has adequate administrative staff, workshops, and other support for new PIs applying for grants. Junior faculty are assigned a senior faculty mentor and all meet formally and annually with the Dean and Vice-Deans. The Committee felt it was a very good approach to track the junior faculty's progress in grant funding, training personnel, and research productivity.

However, we learned that teaching performance was not part of this annual review, and the Committee recommends that this aspect of their pre-tenure evaluation be integrated into this process. Teaching evaluations should also include the enthusiastic and talented adjunct faculty, which might benefit from annual peer-observations, -reviews, and -feedback for improvement, in addition to the student course evaluations alone.

The SER detailed the names of faculty members serving in the different committees but did not specify the exact responsibilities of each committee. Therefore, the current Life Sciences Evaluation Committee cannot comment on whether these fulfill Faculty needs. The junior faculty members we spoke with, indicated that the burden of Faculty and institutional committee membership was not excessive.

Overall, our discussions with junior faculty members validated the Committee's strong view that the BIU is highly supportive of newly recruited life science faculty members enabling them to transition as independent PIs smoothly and effectively.

In the case of the lab managers, 50% of their FTE is funded by BIU. While it is viewed as a critical support to PI labs, this partial coverage is precarious because of the need to find the additional 50% of the funding from grants. This allocation often prevents staff continuity (especially when current grants are small or dry up, which is when these positions are most needed). It is the Committee's recommendation that the Institution find support to increase and stabilize these positions, for example by increasing the percentage supported, and in addition providing bridge funds to faculty who lose grant support.

Another issue regarding recruitment and retention arises with highly qualified research staff that are in demand and lured away to more stable, long-term opportunities in academia or higher paying jobs in industry with better job security. These points bring us back to another position in need for attention: the "staff scientist". The Committee recommends that BIU develop a strategy to support the recruitment and retention of highly qualified research staff in the life sciences, especially for the institution's core facilities. One model could be to develop a new employee job category, such as "Research Scientist." It would be a continuing appointment with a stable salary and the opportunity for promotion in the future, if warranted, to "Senior Research Scientist" using a standard evaluation process that can be developed and implemented in the Faculty or across the University. These individuals could be considered as junior (non-PI) "faculty". The Committee acknowledges that this undertaking may not be entirely in the control of BIU - it would likely require government advocacy to

introduce the possibility of implementing these types of positions and enhance the budget to meet this need for universities to deploy.

The Faculty evaluated its overall performance in Academic Faculty and Human Resources:

(1=unsatisfactory, 2=needs significant improvements, 3=needs minor improvements, 4=satisfactory, 5=highly satisfactory)

	1	2	3	4	5
			X		

The Evaluation Committee evaluated the Faculty's overall performance in Academic Faculty and Human Resources:

	1	2	3	4	5
				X	

The Committee commends the high quality, effective and plentiful assistance, and the onboarding of junior faculty members in the Faculty. In turn, we recommend a review of the status and retention of both lab managers and core staff scientists to assure continuity in research success, services, and quality.

### 3.7 Diversity

The diversity of the student body is commendable. The provided data indicate that 14% of the undergraduate students are Arabs, and there are both Haredi students and Ethiopian students. The fraction of minorities drops sharply with each consequent degree program. These individuals appear to be well-supported in their needs, some of this support is institutional and the rest comes from peer-groups. For example, it seems to the Evaluation Committee that the school provides an excellent program for supporting the Arab students both in Hebrew language acquisition and with establishment of a community at the school. There are University Office coordinators for Ethiopian, Olim, Haredi, and Arab students, who are important in supporting and problem solving for these specific groups. In addition, there is an effective peer support group where more senior students tutor and/or translate the coursework for entering students.

We were told that the dormitories have a representation of 40% Arab students because their homes are too distant to commute daily. The Committee inferred that there must be an effective outreach to student populations in high schools in communities outside the local commuting area, such as northern Israeli Arab towns.

A small number of the doctoral students were educated at other institutions, but many of the graduate students received their undergraduate studies at BIU. The program might benefit by bringing in more PhD students from other institutions including from other countries. Similarly, the faculty is virtually all native Israeli, most with the customary postdoctoral training overseas. The Hebrew language of undergraduate instruction likely prevents the recruitment of foreign-born scientists as faculty members.

The data provided show that none of the faculty members are Ethiopian, Haredi, or Arabs. The SER indicates that no minority candidates applied for faculty positions. This can be remedied by specific outreach, as the effect of role models on student development is well-documented. Other organizations internationally, who wish to diversify their units, commonly engage in specific outreach initiatives.

About 60% of the students in the Life Sciences programs are women. In turn, female faculty represent only a quarter of the tenure-track/tenured faculty members in Life Sciences. Most of the women faculty are at the more junior levels. The administrative staff is almost entirely women. We were not provided data on the prevalence of minorities among the administrative staff.

There is a written policy on a one-year delay of the tenure clock for female faculty who become mothers (one year per child). This is appropriate. We asked if there were a spousal hiring program, because the recruitment of faculty is often a “two-body” problem; we were told by the Rector that excellence/quality is the only criterion for faculty hiring, but among equals, they are prioritizing hiring women. The hiring of couples to the same department is strongly discouraged. The Committee recommends that the institution adopt a more proactive approach to dual hires.

The Vice-Dean for Graduate Education is also strongly committed to promoting the careers of minorities and women. She and the students spoke enthusiastically about her program on Motherhood and Academia. The Committee highly commends this activity.

Another aspect of Diversity is accessibility. Not all space is barrier-free. Not all areas are accessible to students with mobility issues. But this is not an area that the Committee had time to look into in any detail, so we have no further comments. In addition, the SER explicitly indicated that Braille services are available for visually impaired students.

The Faculty evaluated its overall performance in Diversity:

(1=unsatisfactory, 2=needs significant improvements, 3=needs minor improvements, 4=satisfactory, 5=highly satisfactory)

	1	2	3	4	5
					X

The Evaluation Committee evaluated the Faculty's overall performance in Diversity:

	1	2	3	4	5
			X		

The Committee noted the strength of support for women students and faculty with families and students overall from diverse backgrounds. In turn, we saw a decreasing diversity of the student and faculty body as they move from undergraduate to graduate and from junior to senior faculty.

### 3.8 Research

The Committee was impressed with the level of research being conducted at BIU. The Committee was equally well impressed with the support the Faculty provides for students and faculty members (PIs) alike, which facilitates quality research and discoveries. Most strikingly, new faculty enjoyed the careful oversight and preparation provided by the Vice Dean for Infrastructure (and the other vice deans). New faculty meet with the Vice Dean before onboarding, consult with architects before onboarding, and have a reasonable expectation of having a functional laboratory soon after they arrive. They are also able to begin to purchase equipment, even before they are onboarded. All of this ensures that research can begin as soon as faculty arrive and provide for enhanced productivity in research and education.

The mentoring program, which is a key part of career and research success for junior faculty, is excellent with both ongoing mentorship (with a single mentor) and then annual individual meetings with the Dean and all Vice Deans. This process not only provides oversight towards preparing for tenure review – and hence reduces some of the stress with this process, but also helps focus faculty on critical aspects of career development. Note that some suggestions on how to make these processes even better are detailed in §3.6.

One thing that was noted by the Committee is the lesser emphasis on postdoctoral trainees. Obviously, Bar Ilan has a very significant undergraduate program, and undergraduate researchers would obviously be a part of the research endeavor. Similarly, Master's and PhD students would be part of the research endeavor, but it is well-known that postdocs are critical for many reasons. Bar Ilan graduates doing postdocs internationally and bringing postdocs in from international sites would provide many benefits, including 1) opportunities for exchange with other major scientific centers; 2) increasing the impact and visibility of Bar Ilan; 3) providing an entree into international collaborations; and 4) accessing binational postdoctoral fellowships that are available to trainees in other countries for postdocs done outside their home country.

The SER notes the small number of individuals that go on to do postdocs; in addition, over the course of the visit, the lack of emphasis on international postdocs was clear. When asked specifically, it was revealed that only 1.5 FTE postdoc fellowship positions are provided to the

entire Faculty annually. It is hence this Committee’s recommendation that the Faculty leadership implement a plan to enhance postdoctoral training and means to attract them.

The existence of centers, specifically, the centers focused on nanotechnology, neuroscience, and computer science, represent a very powerful model. It is the nature of much of modern biology to be interdisciplinary, and BINA (the center for nanotechnology) clearly brings together biologists, physicists, chemists, etc., to advance all aspects of science. However, while the Committee had exposure to BINA, we had no access to the other centers, for example the pre-clinical cores. But, if taking BINA as a model, this is a very important direction that brings together multiple disciplines and provides critical resources for scientists in life sciences and biology, and also other disciplines. The Committee considered both the concept and implementation to be outstanding.

The Committee heard that the in-house core facilities, which are central to the research success of the faculty, would benefit from even more support for the staff and for maintenance contracts. As mentioned in the “Academic Faculty and HR” section, the Committee recommends establishing an academic position (rather than the administrative rankings that they currently have) for the Staff Scientists running the critical core facilities.

We were told that previously in Israel such positions existed but have since been abolished. The Committee was surprised by this information, because in both the USA and in Europe the importance of such positions is being increasingly recognized. Indeed, with the purchase of high-tech new equipment in other countries, it is becoming a requirement to specify a funded position for the scientist who will be in charge of the equipment, and thus provide research support and training to users. The Committee emphasizes the importance of such stable, appropriately funded positions. Such continuity will allow researchers to make the best use of high-tech instrumentation, and thus enable them to generate high quality data for internationally competitive science.

The Faculty evaluated its overall performance in Research:

(1=unsatisfactory, 2=needs significant improvements, 3=needs minor improvements, 4=satisfactory, 5=highly satisfactory)

	1	2	3	4	5
				X	

The Evaluation Committee evaluated the Faculty's overall performance in Research:

	1	2	3	4	5
				X	

The Committee observed that Faculty members perform high impact current research supported by mostly state-of-the-art facilities and laboratories, involving PhD and Masters' students to generate data and publications.

### **3.9 Infrastructure**

The Committee toured various spaces, including PI research labs (one that was equipped within the last 5-6 years within the new Nanoscience Facility, and another that is currently being renovated there); various new and renovated core facilities, such as microscopy, genomics, metabolomics, cell separation (we did not see the pre-clinical facility, but it has been recently refurbished, including added transgenic animal research capabilities); undergraduate teaching labs, and the soon-to-be-completed library and group study space; and met with several of the staff scientists that support these various facilities. Overall, the Committee considered the new and recently renovated core facilities to be very well-resourced with much of the state-of-the-art equipment comparable to the best facilities internationally. These resources are available to the faculty at very reasonable and affordable fees. At many facilities (internationally) the fees become prohibitive for use. The low user costs are largely a consequence of the facilities managers' salaries being paid by the Institution. The Committee views this situation as wonderful and appropriate. A definite asset that the Institution should be proud of.

As described in the SER, there is a need to continue the momentum of renovating research and teaching spaces for the Life Sciences Faculty since there remain many old labs and classrooms in older buildings. In our meeting with senior administration, it was confirmed that BIU will invest \$3M over the next 3 years to continue the gradual renovation of PI research labs and the addition of at least two new undergraduate teaching labs. The Committee commends this planning and effort. A particularly appealing aspect of the BIU Life Sciences planning process is to pre-renoate and -equip research labs with generic facilities to speed up the research onset of newly recruited faculty members arriving to the University.

Furthermore, through collaboration with the Sheba Hospital, several new PI research labs are being planned as part of the HealthTech Valley initiative. Although details of this initiative remain to be fully crystallized, the establishment of it is a strong signal by BIU that they will support new infrastructure that the Faculty could rely upon to expand their representation of biomedical, biotechnological, and computational biology research, a goal that was articulated in the SER. This is especially important since the Medical School at BIU is located in the north of Israel, precluding direct collaborations between faculty and through shared resources.

Clearly, BIU has made, and continues to make, significant investments in upgrading research and teaching infrastructure since the last CHE evaluation. However, one issue that was identified in the SER and further articulated by the Faculty during the visit, was the need for funding shared research equipment. The Committee learned that there is no funding from the University for supporting the purchase of equipment in the core facilities unless it is for matching funds for external grant applications or involves start-up funds from new faculty packages. However, government equipment grants are often targeted for specific types of equipment that may or may not be needed for the types of research being performed in the Faculty; in addition service and repair contracts are often not included in these grants, nor is



there sufficient internal funding for these contracts. Taken together, this represents a precarious scenario that leaves few options for the timely purchase of specialized new/replacement core equipment, which is critical for the Faculty to realize ambitions to leverage the investments in infrastructure and support cutting-edge interdisciplinary research with greater translational potential.

Although it is wonderful to have some unique state-of-the-art facilities in house, we learned that BIU often does not obtain service contracts. For other facilities and services, the emerging network of Israeli Core Facilities (IRCF; [www.israel-cores.org](http://www.israel-cores.org)), and commercial services (for example sending samples for DNA sequencing) may be the more appropriate route.

The Committee recommends that the University find ways to provide base funding support for infrastructure renewal for the Faculty of Life Science on a more predictable frequency, and that is separate from matching funds for grant application (which should still be pursued as much as possible). Moreover, the Committee recommends that BIU, along with other research-intensive universities, strongly advocate for the Israeli government to move away from equipment grant competitions that are calls for specific types of equipment, and instead focus on open calls that are based solely on requirements of researchers for excellence and innovation in any field of life science.

The Committee strongly recommends that the CHE consider coordinating and funding core services across all universities. The IRCF model for coordinating the institutional core facilities, especially OMICS facilities, across the entire country should be championed by the senior administration to go beyond a website repository of information. An operationally integrated initiative as this approach provides an opportunity for sharing expertise, reducing the costs and redundancies for well-established platforms and enhancing research productivity within a highly research active but geographically small country.

A general feeling from all the faculty members was that the IT support was inadequate in terms of servers, networks, backup systems, licenses, and security, for research and for teaching. BIU should take concrete steps toward improving the IT support across the Faculty.

There is an ongoing renovation of the former Life Sciences library space to become a 21st century library and group study space, where student and faculty seminar and communal working spaces have replaced the stacks of books and journals that are now available electronically (while still providing physical space for textbooks on loan to the students). The digital services available to the library are specific to Bar Ilan University which constrains the spread and breadth of the resources and journals available to faculty and students. Much like as recommended for the core-facilities, BIU would benefit from an Israeli nation-wide e-journal subscription plan across all research universities and colleges. In turn, individual faculty members would benefit from Faculty and Institution-wide agreements and site licenses for essential databases and software packages.

The Faculty evaluated its overall performance in Infrastructure:

(1=unsatisfactory, 2=needs significant improvements, 3=needs minor improvements, 4=satisfactory, 5=highly satisfactory)

	1	2	3	4	5
				X	

The Evaluation Committee evaluated the Faculty's overall performance in Infrastructure:

	1	2	3	4	5
				X	

Overall, the Committee saw a series of outstanding facilities and equipment, and strong staff supporting the core facilities. For future high-tech and high-productivity research, we suggest transforming the Institutional procurement system of core-facility resources, including the ongoing participation in the nation-wide scheme of shared core-facility developments.

## Section 4: Conclusions and Recommendations

### 4.1 Conclusions

The Committee commends Bar Ilan University regarding the strong and positive relationship between the higher administration and the Faculty of Life Sciences. Ongoing investment in the Faculty of Life Sciences is strong. The committee was impressed by the efficient onboarding of new faculty.

The Committee made recommendations regarding the need for junior faculty to submit teaching statements for their annual mentoring and Faculty review meetings.

The Committee feels strongly that all teaching and thesis writing be in English in the graduate programs. The majority of faculty whom we met, favored teaching in English for graduate students. If BIU aims to diversify through more international students, postdocs, and faculty, and achieve a higher international recognition, switching to conducting graduate programs in English is essential.

The Committee has visited outstanding core facilities staffed by strong support staff; in turn, the faculty (PIs) can use these core resources frequently and economically. The updated and modern facilities and labs that the Committee visited assure productive research programs seen across the Life Sciences at BIU.

### 4.2 Recommendations

#### Essential

The Committee strongly recommends a shift for the graduate programs to be conducted in English, regarding both the language of instruction, discussions, and thesis writing.

The Faculty should include teaching excellence in the evaluation for promotion of junior faculty.

The University should secure funding allocated to the Dean on a yearly basis to allow equipment and service contracts to be purchased, and salaries of staff scientists to be paid, from sources other than external grant funding solely.

### **Important**

The Faculty should put in place measures to increase diversity in the graduate student population.

The institution and the Faculty should put in place measures to increase diversity at the faculty level - both regarding different under-represented groups and increasing internationalization of the faculty.

The Faculty should review and provide peer-feedback on the teaching conducted by adjunct faculty in the Life Science courses.

The Faculty should take measures to address drop out numbers for undergraduate students. Assessing the phenomena and distinguishing between the students who leave to go to medical school, and those who truly are unable to finish the program, would require different remedial approaches. In addition, the Faculty should take measures to address drop out of graduate students by enhancing the rigor of 'admission on probation' to graduate programs.

The Faculty should provide students with information to broaden their career horizons beyond medical and academic goals.

The Institution should improve the IT support given to the Faculty, have Faculty-wide consistent support, and widen the selection of group-licenses for widely-used software (beyond Windows and Office).

The Committee recommends that the Institution finds a means to increase and stabilize the Lab-manager positions. In addition, it is recommended that the Institution establish a program of bridge funding which can be applied for by faculty who lose grant support.

### **Desirable**

The Committee strongly recommends that BIU actively participates in ongoing efforts to develop nation-wide core facilities and research equipment centers. BIU is well-positioned to play a leadership role in such planning.

The Committee suggests that the Faculty and the Institution advocate for a nation-wide e-journal access plan to be put in place for all higher education institutions in Israel.

The Committee suggests the Institution to establish an 'International Office' at the Institutional level to enable recruitment of appropriate foreign students. Help is required at the evaluation steps and in the absorption phase, both in technical matters and in bridging between different cultures.

The Committee proposes to keep a stronger track of the transparency of quantitative assessments and decision-making processes within the Faculty and between the Faculty and Higher Administration.

The Committee suggests taking measures to convince more graduate students to experience a post-doctoral research period outside of Israel. One option may be to offer some collaborative short-term experiences.

Data and material provided in the SER should be carefully tracked and checked before submission, to ensure comprehensive coverage and accuracy, and to minimize errors.

Signed by:

Prof. Lynne Regan  
*Committee Chair*

  
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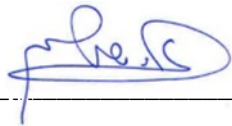
Prof. Joseph Buxbaum

  
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Prof. Edna Cukierman

  
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Prof. Orna Elroy-Stein

  
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Prof. Mark Hauber

  
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Prof. Bruno Lemaitre

  
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Prof. Carol Shoshkes Reiss

  
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Prof. Shai Shaham

  
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Prof. Vincent Tropepe

  
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## 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