

**Response to the September 2010 Report of the Committee for  
the Evaluation of Biology/Life Sciences Study Programs**

**Bar-Ilan University**

**Life Sciences Teaching Program**

**The Mina & Everard Goodman Faculty of Life Sciences**

**Evaluation Report**



**October 2010**

## **Chapter 3 - Evaluation of Biology/Life Sciences Study Programs at Bar-Ilan University**

In response to the September 2010 report of the Committee for the Evaluation of Biology/Life Sciences Study Programs, we would like to refer to the weak points mentioned regarding the following issues:

### **3.2 Executive Summary:**

The Faculty of Life Sciences (LS) of Bar-Ilan University believes that there has been a severe mistake in the calculation of the number of papers published by LS faculty members in the years 2004-2008. This number reflects the LS research achievements as appeared in the committee's report. The details of our calculation is presented in our response to Chapter 9 – Research, of the committee report)

#### **\*High student-to faculty ratio**

One of the major criticisms appearing under section 3.2 dealt with the high student-to faculty ratio. The reason for this phenomenon is related to the university requirement to increase the number of students in the Exact and Life Sciences. This increase in student number was encouraged and supported by MALAG over the last ten years. An increase in the number of undergraduate students increases the pool for the selection of MSc students as well as PhD students among the MSc graduates, thus giving us the ability to select the finest graduate students.

However, we have already noticed that this trend puts tremendous pressure on our faculty members, especially the young ones, who currently make up our largest population. Before receiving the report, we notified our faculty members in May 2010 that we will restrict the number of new PhD students recruited per year, per group, to two. We also decided to restrict the total number of PhD students to six per group. In addition, we gradually decreased the size of the MSc classes during the last few years (a total of 265 registered MSc students in 2008-2009 compared to 190 in the present year 2010-2011).

### **3.4 Curriculum**

#### **\*Not enough difference between the tracks**

The Faculty of Life Sciences in Bar-Ilan offers three tracks for a BSc degree: Biology, Biotechnology, and Computational Biology. The difference between these three tracks is significant and they include many track-specific courses, as the committee recommended.

Within the Biology track, there are three subtracks: Cellular and Medical Biology, Plant and Environmental Sciences, and Developmental Biology and Physiology. We fully agree with the committee's comment that the difference between these three subtracks is not substantial enough. Consequently, we plan to have only two subtracks in Biology: one in Plant and Environmental Sciences and a second in Cellular Developmental and Medical Biology. The

curriculum of these subtracks will contain more track-specific courses, as the committee recommended. The work on these changes has already started and the two subtracks in Biology will be available starting in the academic year 2011-2012.

**\* Few courses in ecology, plant physiology and zoology.**

We are aware of the small number of courses in these fields. This is mainly due to the small number of faculty members who specialize in these fields.

We have recruited a new faculty member who specializes in plant physiology and, consequently, we will increase the number of courses in this field starting in the academic year 2011-2012. We are now looking for a new faculty member specializing in ecology and hope to recruit one soon. As of now, we do not plan to increase the number of zoology courses.

**\*Heavy load of obligatory courses in Jewish studies**

The requirement of taking a variety of basic courses, including Jewish studies, has been a university policy from the very beginning, since the establishment of the university. However, the Faculty is aware of the heavy load of these studies and suggests decreasing the amount of courses and changing their topics and scopes.

Regarding the committee's remark about substituting Jewish courses with LS courses, we would like to point out that even if there is a decrease in the number of Jewish and general courses, the Faculty will not be able to add courses above 72.5 credits, as determined by the rector of the university.

### **3.5 Teaching and Learning**

**\*Large number of MSc and PhD students in many research labs**

We have already taken steps to decrease the number of students per research group, as outlined above.

**\*Large number of MSc and PhD students may be interfering with the quantity of scholarship**

The Faculty of Life Sciences increased the salary of MSc students by 25% in the academic year 2010-2011.

We established a graded scholarship ranging from 75% to 125%, based on the academic achievements of the MSc students. These achievements are measured by the average of the grade from the student's undergraduate studies and the mark on a test given to MSc candidates. This test is based on the student's ability to critically evaluate a scientific paper that he/she sees for the first time during the test.

For PhD students, we have an ongoing program to increase scholarships based on excellence. Students with proven achievements such as publication of papers, full commitment to research (at least 45 hours per week), and serving as role models in their group and in the Faculty, receive an increase in their scholarship that is funded equally by the PI and the Faculty budget.

We created PSAGOT, a special program allowing outstanding undergraduate students to start their MSc program during their third year of study and thus obtain an MSc degree after a total of four years of study. This program has

already begun and 11 students are enrolled. The Faculty pays these students a special scholarship.

### **3.6.1 BSc Students**

#### **\*Structure and bureaucracy**

During 2008, a new unit was established, dedicated to the guidance of students regarding various problems that they face during their studies. This unit consists of two consultants (Dr. Sharabi and Dr. Zurovsky) and a secretary, who helps students cope with academic and administrative tasks. Recent feedback from students regarding this unit is very positive. In addition to the daily consultations offered by Dr. Sharabi and Dr. Zurovsky, at the end of each year they meet with students who performed poorly that year, and advise them regarding the continuation of their studies.

#### **\*Seven compulsory Judaism courses over 3 years**

Please see our response in section 3.4

#### **\*Track-specific courses**

Please see our response in section 3.4. Basically, instead of the three subtracks in Biology, we will have only two tracks: (1) Plant and Environmental Sciences; and (2) Cellular Developmental and Medical Biology. The curriculum of these subtracks will contain more track-specific courses, as the committee recommended. The work on these changes has already started and these new subtracks will be available starting from the 2011-2012 academic year.

As a result of these changes, the students in our Faculty will be able to choose from four substantially different tracks having many track-specific courses: (1) Biotechnology; (2) Computational Biology; (3) Plant and Environmental Sciences; and (4) Cellular Developmental and Medical Biology.

#### **\*Criticism about the instructors (TAs)**

As of the current academic year (2010-2011), we allow only students exhibiting a high caliber of success in their research to act as TAs. We also encourage outstanding students who have obtained a 125% scholarship to act as TAs from their first year of MSc study. On the other hand, we do not allow students who have not made progress in their research to act as TAs, thus focusing on allowing only our best students to teach. In addition, we will increase the teaching staff of the practical lab courses, and a faculty member will be physically present at each lab course. TAs who tutor in "dry" exercises will also be supervised by a Faculty academic staff member, who will examine the presentations and teaching material.

We think that the student criticism is mainly directed toward TAs who teach courses given by other departments. We always ask the departments to nominate qualified TAs and direct the lecturers of these courses to strictly follow and supervise their TAs. Unfortunately, this is not always satisfactory because the LS Faculty cannot control the services given by the mathematics, physics and chemistry departments.

**\*Students do not believe that their evaluations of faculty and TAs are considered.**

Student evaluations are definitely considered. As of 2009, the university's vice-rector nominates outstanding lecturers and TAs each year based on a number of criteria, including student evaluations. Since 2008, the university has been offering workshops in lecturing, mainly attended by new lecturers. Lecturers who receive poor student evaluations are required to attend these workshops.

**\*Problems with scheduling exams**

The exam schedule is discussed with student representatives, and changes requested by them are introduced whenever possible. The exam schedule is published at the very beginning of each academic year to allow students time to take it into consideration when they choose their courses.

Problems arise mainly with courses given by other departments since there is no coordination of exam schedules between the LS Faculty and other university departments.

**\*New immigrants need help in understanding exams**

Translation of exams (to English only) for a fee is provided by the university (Dean of student's office) upon demand. The students are entitled for four translations of exams per semester. Generally the lecturers are advised especially to assist new immigrant students during the exam. When payment poses a problem for a student, the Faculty provides help with the translations or their funding.

**\*Accessibility for handicapped people**

All research labs are fully accessible to handicapped students or lecturers. Five of our teaching labs are located on the ground floor (two in Building 212 (the main LS building), and two in the Lunenfeld Building). The labs can be easily reached from the building parking lot or from the upper floors by a large elevator. On the ground floor of the main building (212), there are two large bathrooms for the handicapped. There is another teaching lab on the third floor in Building 212 that can be reached by a large elevator and has a bathroom nearby for handicapped people. All the teaching labs are furnished with tables especially suited for handicapped students, allowing comfortable movement of wheelchairs.

To the best of our knowledge, all the classes and lecture halls of the university have been fully adapted for wheelchairs. Each lecture hall is either located on the ground floor or can be reached by an elevator.

The LS library is located on the first floor of Building 212 and can be reached by elevator.

**\*Shortage of computers in the library, wireless internet and computer speed is slow.**

During the last two years, we installed nearly 100 new computers for the students in 4 computer labs. The ratio of computers per student is 1:3. Each computer is connected to the university library, and there is access to electronic journals via the university library website. However, our library lacks some major electronic journals.

During the 2010 academic year, Wi-Fi free internet access became available throughout the entire Bar-Ilan campus.

### **3.6.2 MSc students**

We accept all the recommendations, most of which have already been implemented.

#### **\*Large number of MSc students**

We intend to reduce the number of MSc students per annum, which will subsequently lead to a decrease in the number of MSc students per group.

Faculty members will be encouraged to shift from training MSc students to more PhD students. We will attempt to encourage students to enroll in the direct PhD program, which has been less encouraged by the university due to funding considerations. Outstanding candidates for such a program will be students who complete the PSAGOT program, but also other excellent students.

#### **\*Poor writing skills both in Hebrew and English**

The LS Faculty will encourage students to write in English, especially new immigrants whose Hebrew writing is poor. The low quality of Hebrew writing is a major problem faced by the institutions of higher education, but the problem starts early on and is basically the end product of a process that starts in elementary school. We hope that the changes implemented in high school education during the last year will help improve the situation.

The Faculty will allow only students who have the appropriate skills and capabilities to write their theses in English. The success of this decision will be evaluated according to the grade the students get for their proposals. As of the 2010-2011 academic year, grades will be given on the research proposal. Those who write their proposal in English and get grades higher than 85 will be allowed to write their theses in English. We are reluctant to allow all the students to write in English because of major differences in foreign-language skills.

Our English scientific writing course (80-812) will be mandatory for both MSc and PhD students.

#### **\*Inadequate scholarship support**

The Faculty will increase scholarships for MSc students by 25%. This added expense will be shared by the PI and Faculty resources.

#### **\*Grade inflation**

We are aware of the fact that MSc grades are high, but this is also true for other institutions in Israel. The LS Faculty will modify the formula used to calculate the final grade of the MSc thesis by lowering the input of the advisor. We will put more weight on general knowledge expressed in the final exam and on writing skills. We will also take into consideration the grade given on the research proposal after one year of research. We hope that these measures will lower the average grade.

Please note that we do not approve a grade of 96 and above for students who did not produce enough data for a first-author publication.

### **3.6.3 PhD students**

#### **\*Not many students are attracted from other institutes**

We will make attempts to attract PhD students from other institutions by sending out poster-advertisements to all major institutions in Israel as well as abroad. We will also advertise our graduate school in International journals as well as at scientific meetings in Israel and abroad.

Our experience from the last ten years is that students who move to the center of Israel from the north or south are very good candidates. However, we had less success in recruiting students who performed their thesis research in the center of the country outside BIU. In other words, it is very difficult to recruit good students from other universities because each university aggressively pursues its own graduates.

#### **\*Large number of MSc and PhD students in many research labs**

We will limit the number of new PhD students to two per year, reaching a total of 6 in each research lab.

#### **\*PhD student's amount of publications**

There will be a mandatory requirement in our Faculty that as of 2010, a student cannot graduate the PhD program without having at least one first-author publication.

We hope that the amount as well as the quality of the publications of our PhD students will increase in the future due to the very talented and ambitious new faculty members that have been recruited over the last few years. There is a very good chance that these publications will be sent to high impact factor publications.

#### **\*Shortage of courses for PhD students**

We will open new courses for graduate students and will encourage the faculty members to build two kinds of elective courses, one for beginner-undergraduates and one with more advanced topics for graduate students. However, the teaching load is very heavy (especially in comparison to other universities), so we cannot offer too many new courses.

#### **\*Need for more PhD courses to be taken outside the university**

We will act to change the university policy limiting the approval of classes outside the university or the program to only 2-3 classes. This will also be encouraged nationally by the creation of the I-CORE program, which will support interdisciplinary, intercampus courses.

#### **\*The dissertation must be written in Hebrew**

There has always been an option to write PhD dissertations in English. The only requirement for this is submission of a statement that the thesis has been edited by a native English speaker.

**\*Scholarship funding is low**

Joint funding by the PIs and Faculty will raise PhD salaries.

**General statement**

It was stated in the report that PhD students supervise MSc students. This has never been encouraged in our Faculty. Each MSc student must submit a 10-15 page research proposal after the first year and this has to be approved by a mentor. PhD students do assist MSc students in the implementation of lab techniques but not with the research focus, future research direction, etc. We will encourage more of our graduates to strive to continue as postdoctoral fellows, even if they intend to eventually join industry or practical research/services in medical institutions.

**3.7 Human Resources: New Junior Faculty**

**\*There is a need for structured mentoring of the junior faculty members by the Faculty of Life Sciences**

We fully accept this recommendation of the committee. Currently, the junior faculty members are being mentored and supervised by the faculty management team consisting of four senior professors. This is carried out through personal meetings in which all aspects of research directions, graduate-student supervision, teaching, and promotion processes, are being discussed. However, according to the committee's suggestion, we are structuring a new system in which each junior staff member will be also accompanied and supervised by a senior, more experienced faculty staff member.

**\*The University/Faculty encourages/pressures junior faculty to take too many research students**

LS Faculty will limit the number of newly recruited PhD students per year to two and to overall number of 6 PhD students in each research lab.

We also encourage young faculty members to recruit postdoctoral fellows and even highly qualified research associates if they can financially afford it. Such personnel could help with the ongoing supervision of younger students on a daily basis.

**\*Heavy bureaucracy that must be negotiated to buy equipment**

We fully accept this criticism. We have approached the university authorities to speed up the process of purchasing new equipment. We hope that new managerial changes on campus will include taking action to grant this request.

**3.8 Infrastructure**

**\*The Animal facility is below standard.**

The two animal housing facilities of our Faculty contain mice, rats, and rabbits. During the last 20 years, little was done by the university authorities to upgrade animal housing. During the last year, the older housing facility

(southern) was practically closed as a consequence of poor conditions, and action was taken to improve the facilities.

During 2010, a sum of \$600,000 was provided by the university Research Authority and the Faculty of LS in order to renovate the major housing building and to purchase modern IVC cages. The animal facility in Building 208 is now fully renovated. New floors and panels were put in, and the walls were repainted to ensure sterility. In addition, new equipment was purchased. The rooms were adapted for IVC cages, which have been transferred to the animal rooms. This quick process will markedly improve research conditions. In addition, provisional animal housing is now planned in order to ease the demand for more space to work with the animals.

Alongside with this improvement in physical conditions, we hired a full-time veterinarian (MVD) who will be dedicated to animal research in the Faculty.

We are fully aware that the overall conditions are not yet optimal. The Faculty is demanding to build a modern animal housing facility that will successfully meet the increased requirements for animal research, especially of the young recruited scientists.

**\*Major electronic journals are not available.**

We completely agree with this criticism, and we approached the president of the university, stressing the severity of this problem. We hope that the new medical school will justify the need for more major electronic journals.

### **3.9 Research**

As mentioned in section 3.2, the Faculty of Life Sciences at Bar-Ilan University believes that there has been a mistake in the calculation of the number of papers published by LS faculty members in the years 2004-2008 (this number reflects the research achievements as appeared in the committee's report). We reported 689 papers while the committee report stated that "Total self reported research papers published by LS faculty of Bar Ilan University - 1,689". In our opinion, this is a typographical error on the part of the committee.

A more significant mistake occurred when the committee reported the number "Total Web of Science - 256". By our calculations, we believe that the total number of papers published by Bar-Ilan LS faculty members in the years 2004-2008 as indicated by ISI Web of Knowledge is 536. Since the number 256 (papers) was used for many of the calculations in Table 1 (Quantitative Analysis of the Faculty of Life Science at Bar-Ilan University) such as Number of Papers per Faculty, Annual Publications per PhD/y, Annual Faculty Publications /year, etc., we believe that this mistake portrays the scientific productivity of our Faculty in an incorrect and misleading manner. We hope this will be corrected in the committee's final report.

An explanation of how we reached the number of **536** papers:

For each faculty member we used the advanced search option of ISI Web of Knowledge and crossed his/her name with the affiliation Bar-Ilan (for example: au=nir u and og=Bar-Ilan). These numbers are presented in the attached table in the columns ISI. Basically, this is the same table we submitted to the committee previously with the addition of these ISI columns. These numbers add up to 582 papers. After omitting duplications (papers in which there are

more than one Bar-Ilan faculty member as authors – we found 46 such papers), we reached the number 536.

Please note that the most significant differences between the number of papers we reported previously for a faculty member and the number found in ISI are for recently recruited faculty members who were not with us for the whole period of 2004-2008. In such cases, many of their publications from that period (2004-2008) were listed with their previous affiliations.

The high percentage of new recruits (22%) during that period (9 new recruits out of 41 faculty members, highlighted in yellow in the attached table) also affects the numbers. It would be best if a way could be found to include in your calculations the fact that these faculty members joined us during the period of 2004-2008 and were only with us part of that period.

<b>Time in Bar-Ilan University</b>	<b>Faculty member</b>
Four years (2005-8)	Haim Cohen
Three years (2006-8)	Yaron Shav-Tal, Doron Ginsberg
Two years (2007-8)	Ehud Banin, Mira Barda-Saad, Maoz Fine, Yoav Paas
One year (2008)	Yanay Ofran, Cyrille Cohen

However, it should be emphasized that for reasons that are not clear to us, some papers of senior faculty members that were published in high-rated journals, were omitted from the list presented by the committee. For example, Prof. Shulamit Michaeli published papers that were not cited in the ISI list:

- 1) Goldshmidt et al., J Biol Chem, 2008
- 2) Tkacz et al., Mol Biochem Parasitol , 2008
- 3) Barth et al., Eukaryot Cell, 2008
- 4) Lustig et al., EMBO Reports, 2007
- 5) Biton et al., Mol Biochem Parasitol, 2006
- 6) Liang et al., Mol Biochem Parasitol, 2006
- 7) Liang et al., RNA, 2005

**Table 1 List of publications (2004-2008) by academic staff of the Faculty of Life Sciences at Bar-Ilan University**

Name	ISI	No. of publications reported in BIU LS faculty report	Name	ISI	No. of publications reported in BIU LS faculty report
Prof. Doron Ginsberg	7	15	Dr. Benny Motro	5	5
Dr. Mira Barda-Saad	0	10	Prof. Chaya Brodie	19	21

Prof. Benjamin Bartoov	13	6	Prof. Ronald S. Goldstein	12	11
Prof. Haim Breitbart	15	14	Prof. Ron Wides	7	9
Prof. Benjamin Sredni	36	24	Prof. Abraham J. Susswein	11	11
Dr. Jeremy Don	7	6	Prof. Gal Yadid	37	29
Dr. Haim Cohen	3	9	Prof. Avraham Mayevsky	21	32
Dr. Cyrille Cohen	0	16	Dr. Alon Korngreen	18	15
Dr. Yoav Paas	2	10	Prof. Asher Shainberg	29	25
Dr. Yaron Shav-Tal	6	17	Prof. Ziv Kizner	12	13
Prof. Eva Meirovitch	9	7	Prof. Rafael Perl-Treves	11	21
Prof. Ronit Sarid	19	20	Dr. Ilana Berman-Frank	11	12
Prof. Uri Nir	9	9	Prof. Yair Achituv	26	31
Dr. Don J. Katcoff	13	13	Dr. Maoz Fine	0	26
Dr. Ehud Banin	2	5	Dr. Rakefet Schwarz	10	8
Prof. Shulamit Michaeli	20	24	Dr. Orit Shaul	6	6
Prof. Yeshayahu Nitzan	23	30	Prof. Yosef Steinberger	43	45
Prof. Zvi Malik	13	14	Prof. Yigal Cohen	27	24
			Prof. Ziv Kizner	12	13
Prof. Ron Unger	15	20	Dr. Yanay Ofra	2	12
Dr. Ramit Mehr	26	24	Prof. Elisha Haas	11	14
Prof. Avidan Neumann	26	26			
			<b>Publications per year</b>	<b>107.2</b>	<b>137.8</b>
			<b>Publications per faculty member</b>	<b>2.60</b>	<b>3.36</b>

## **Chapter 4 – General Recommendations**

### **Teaching programs**

**\*A clear distinction between tracks in the Life Science program should be made; at least 25% of the courses should be track-specific**

As mentioned, the Faculty of Life Sciences of Bar-Ilan University offers three tracks for a BSc degree: Biology, Biotechnology, and Computational Biology. The difference between these three tracks is significant and they include many track-specific courses, as the committee recommended.

Within the Biology track, there are three subtracks: Cellular and Medical Biology, Plant and Environmental Sciences, and Developmental Biology and Physiology. We fully agree with the committee's comment that the difference

between these three subtracks is not substantial enough. Consequently, we plan to have only two subtracks in the biology track. These will be (1) Plant and Environmental Sciences; and (2) Cellular Developmental and Medical Biology. The curriculum of these two subtracks will contain more track-specific courses, as the committee recommended. The work on these changes has already begun and the new subtracks in Biology will be available starting in the academic year 2011-2012.

At that time, the students in our Faculty will be able to choose between four tracks that are substantially different and have many track-specific courses: (1) Biotechnology; (2) Computational Biology; (3) Plant and Environmental Sciences; and (4) Cellular Developmental and Medical Biology.

**\*The ratio of BSc, MSc and PhD students per PI is too high**

As mentioned, in May 2010, the academic leadership of the Faculty already instructed the academic staff members to restrict the number of new PhD students recruited per year, per group, to two. They also decided to restrict the total number of PhD students to six per group. In addition, the Faculty gradually decreased the size of the MSc classes during the last few years (265 registered MSc students in 2008-2009 compared to 190 MSc students in the present year 2010-2011. The number of newly enrolled MSc students decreased from 101 in 2008-2009 to 89 in 2010-2011).

**\*Lack of botany, zoology and ecology in the teaching program**

We have recruited a new faculty member who specializes in plant studies and, consequently, we will increase the number of courses in this field starting in the academic year 2011-2012. We are now looking for a new faculty member specializing in environmental studies and we hope to recruit one soon.

## **Research**

**\*Do not compromise on the quality of new Faculty recruits**

We fully accept this recommendation and strictly adhere to this policy.

**\*Ensure critical mass of researchers in any particular field of research**

We decided to focus on certain topics and we do not believe that we can expand in all directions. The overall number of faculty members is not large enough to allow recruitment in all disciplines. However, we are building critical mass in some major research areas like, system biology, structural biology, immunology, cancer research, infectious diseases, stem cells and marine ecology.

**\*The ratio of MSc and PhD students per PI is too high for most PIs to supervise effectively.**

Please refer to our comments in sections 3.5, 3.6.2, 3.6.3, 3.9, and chapter 4-Teaching programs, regarding this issue.

