

Ra'anana, May 13, 2012

Members of the Committee for the Evaluation of Chemistry Study-Programs

The Council for Higher Education

Jerusalem

We thank the committee for its comprehensive report and the constructive and helpful comments regarding the quality of teaching and research in the unique setting of the Open University. We are pleased that the committee acknowledged the excellent job done by our course coordinators and the tutors.

The committee found our B.Sc. program in Natural Sciences: Emphasis on Chemistry comparable to B.Sc. programs in chemistry at other universities. The committee pointed out that there is less laboratory work in the OUI degree program. In a recent comparison we conducted, we found that the share of laboratory sessions in the OUI program (including laboratory sessions that are part of regular courses) is comparable to that in all other universities except TAU.

Here is a point-by-point response to the committee's comments:

1. *"Additional advanced level courses in chemistry, particularly in organic chemistry"*

A few steps have already been taken in this direction. This year we started teaching an advanced course "Instrumental Chemical Analysis", in accordance with the committee's recommendation in the general part of the evaluation, to enhance analytical chemistry studies. A few more courses are in various stages of development – two advanced courses in organic chemistry, one advanced course in physical chemistry (lasers), an advanced seminar course in inorganic chemistry (nanotechnology) and an advanced seminar course in computational chemistry. We plan to include all these courses in our curriculum within three years. This development work is done alongside updates of existing courses. Recently we updated the basic courses in organic and inorganic chemistry. Other courses are in various stages of updating: Thermodynamics A and B; Laboratory: physical chemistry; Analysis of experiments (advanced course); Oxygen: chemical and biological aspects (advanced seminar course).

2. *"Provide teaching laboratory sites at universities in the north and south of Israel"*

We accept this recommendation which is in line with the policy of the OUI since it was first established. Nevertheless there are some obstacles:

- a. The small number of students in the north and south does not always justify holding separate laboratory sessions.
- b. At times we need special equipment that is not available in other universities.
- c. Lack of cooperation on the part of other colleges and universities.

In spite of these obstacles, in recent years we opened laboratory sessions in the north and especially in the south, and we shall continue our efforts to do so in as many laboratory courses as possible for students in the north and south of Israel.

3. *"Recommend research projects to advanced students and try to match them up with appropriate university faculty member laboratories close to them"*

We accept this recommendation and have been operating in this direction in the last few years. We offer our students an advanced course "Research project". They spend a few months participating in research in a university laboratory guided by a faculty member either from the OUI or from another university. We assist the students in finding a research laboratory close to their homes. Excellent students are encouraged to participate in prestigious undergraduate year-long or summer research programs at the Weizmann Institute of Science. All of our students are exposed to modern research when they take seminar courses. They have to submit a seminar paper. Their work is supervised by a faculty member from the OUI or other university.

4. *"Provide scholarship support for student research experiences in the summer"*

We see great importance in fostering students' research skills, therefore we will consider the committee's recommendation seriously.

5. *"Add tutorials for chemistry classes at remote locations, even for small numbers of students, whenever possible"*.

The OUI tries to open study groups whenever it is possible. Our policy is affirmative action regarding the periphery and science courses. We open study groups with fewer students in the periphery relative to the center of the country, and in science relative to the social sciences. Nevertheless, it is clearly impossible to open a study group for any number of students. Part of this problem is being solved by the extensive use of technologies, particularly synchronous tutorial sessions based on video conference technology. Almost all chemistry courses have websites that include extra teaching materials, recordings of tutorial sessions and a forum where students can get assistance in their studies.

6. *“Include some inspiring lectures of visitors from other universities in Israel (or, when possible, from overseas) in the courses.”*

We accept the recommendation to expose our students to inspiring lectures. In our case, this can be done by utilizing modern technologies. A start in this direction already exists. Once a year, we hold a series of lectures covering the subjects of the Nobel prizes of that year. Twice in recent years, we were lucky and the talks concerning the Nobel Prize in chemistry were given by the Israeli laureates. All the students are invited to attend the talks. The talks are recorded and the recordings are posted on the OUI website.

7. *“The appropriateness of the compensation and workload for the course coordinators and tutors needs to be assessed on a regular basis”*

The OUI management and representatives of the junior faculty (course coordinators and tutors) signed a collective labor agreement in February 2011. The agreement establishes the conditions for an agreement regarding tutors' work. Not long before, the OUI management in collaboration with course coordinators formulated criteria to improve their terms and employment conditions, status and ways of professional promotion.

8. *“The research activities of the senior faculty need to be facilitated in a manner consistent with the expectations for evaluation and promotion. This may require providing more resources in the way of supplies, equipment, and graduate student support”.*

In terms of long term planning, there are no research laboratories at the OUI, nor is there a plan to build such laboratories. Nevertheless, all chemistry faculty members are involved in active research. The research is supported by the OUI Research Authority. Researchers can apply for internal grants to support their research in addition to applying to external funds. Research support is never sufficient but the OUI does its best to support research taking into account budget limitations.

In order to solve the problem of research laboratories, the OUI has signed an agreement with Tel Aviv University to rent research laboratories for the use of faculty members. We will try to expand this to other universities.

Another direction we are taking to solve the problem of research laboratories is a joint program with the Volcani Agriculture Research Center towards M.Sc. studies. Once this

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program is approved by the Council of Higher Education, our faculty members will be able to use the research laboratories in Volcani.

9. *"In cases of absence of analytical instrumentations (such as NMR spectrometer), consider analysis of samples prepared by students at service units of other universities."*

We accept this recommendation. In the past, we used the services of other universities and we plan to do so again for relevant courses.

10. *"Establish framework agreements with universities (in addition to TAU) for research of OUI faculty members".*

We accept the recommendation. As stated, we have a formal arrangement with Tel Aviv University for collaborative research and we are currently working to reach similar agreements with other universities, such as the Hebrew University.

In the general part of the report, the committee expressed its concern regarding the decline of interest in chemistry in Israel. We agree with this observation. The committee suggested changes in the science study programs in high school. We believe that the OUI may have a major role in this direction. We already have high school students studying chemistry at the OUI. Establishing scholarship programs for gifted children who would like to study chemistry while they are in high school might enhance interest in chemistry.

Sincerely,



Prof. Judith Gal-Ezer

Cc:

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