

החלטת המל"ג מיום 03.07.2012 בנושא דוחות הוועדה להערכת איכות בכימיה

המועצה להשכלה גבוהה מאמצת את המלצת ועדת המשנה להבטחת איכות משיבתה ביום 02.07.2012 בעניין דוחות הוועדה להערכת איכות בכימיה, ומחליטה כלהלן:

1. להודות לוועדה להערכת איכות בכימיה בראשות פרופ' ריצ'רד אייזנברג על עבודתה הרבה והמקצועית.
2. לאמץ עקרונות את דוחות ההערכה של הוועדה.
3. לפרסם את דוחות ההערכה ותגובות המוסדות באתר האינטרנט של המל"ג.
4. לבקש מכל מוסד להגיש עד **חודש ינואר 2013** תכנית פעולה ליישום המלצות הוועדה הנוגעות אליו (כולל לו"ז), כמפורט בדוח הוועדה ובנספח המצ"ב.
5. לבקש מכל מוסד להגיש עד **חודש יולי 2013** דוח ביניים אודות יישום תכניות הפעולה הנזכרות בסעיף 4 לעיל.
6. לקיים מפגש עם כל ראשי המחלקות לכימיה בארץ לשם דיון בסוגיות העולות מהדוח הכללי של הוועדה, כגון השינויים שיש לבצע בתכנית הלימודים לתואר ראשון ובתכניות לתארים מתקדמים על מנת להביא לקידום המחקר והלמידה העצמית, קביעת מסגרת אחידה של נ"ז לתכניות הלימודים במוסדות השונים ועוד.
7. במסגרת המפגש עם ראשי המחלקות יידונו עיקרי המלצות בדוח הכללי המפורטות בנספח המצ"ב (סעיפים 1-9) ונושאים נוספים מתוך דוח זה, לרבות סוגיית שיתוף הפעולה עם התעשייה.
7. לאחר המפגש עם ראשי המחלקות לכימיה הוועדה לתכנון ותקצוב תתבקש לבחון את הנושאים השונים הרלוונטיים העולים בדוח הכללי בכימיה (כגון: סעיף 8 בנספח המלצות מתוך הדוח הכללי להלן), ולהגיש המלצותיה למועצה עד ינואר 2013.

נספח להצעת החלטה - עיקרי המלצות בדוחות הוועדה

הערה: אנא תשומת ליבכם כי עיקרי המלצות המפורטות להלן מופיעות בתמצית המנהלים של כל אחד מהדוחות הפרטניים. יצוין כי בנוסף להמלצות אלו נדרשת תשומת ליבכם גם להתייחסויות השונות, להמלצות, לפירוט ולהרחבות המופיעים לאורך הדוחות הפרטניים. ביחס לדוח הכללי מפורטות להלן המלצות שפורטו בפרק המלצות בדוח זה. יצוין כי גם כאן נדרשת תשומת ליבכם גם להתייחסויות השונות, להמלצות, לפירוט ולהרחבות המופיעים לאורך הדוח הכללי.

עיקרי המלצות מתוך הדוח של אוניברסיטת בן-גוריון בנגב

- All frontal chemistry courses at BGU should be taught by Chemistry Department faculty.
- Use of larger lecture halls to reduce duplication of large-audience introductory chemistry lectures should be done.
- Undergraduate chemistry instructional laboratories should be remodeled.
- Increase faculty involvement/presence in undergraduate laboratory courses.
- Provide career counseling and expose students to industrial chemistry and I.P. concepts. The latter could be done via visiting speakers, tours of industrial facilities, and internships for students in industrial laboratories, law firms, and venture capitalists.
- Efforts to reduce the teaching load of doctoral students while maintaining their levels of support should be made.
- Career counseling for finishing students at all levels is recommended.
- Ph.D. students should be assigned faculty committees for periodic feedback throughout their programs.
- More support for Ph.D. students through grant funds is recommended in order to reduce their teaching hours and increase their research efforts.
- Representation of synthetic organic chemistry on the faculty should be increased.

- Planning for laboratory space for near-future new faculty members is urgently needed; *creation of laboratory space may require consolidation of less active senior faculty laboratories.*
- Construction of a new building should be given top priority; existing plans for the new building should be reviewed in light of current and future needs. The Committee is concerned that the estimated cost of \$20M is not sufficient for a building that will house 25 research groups of the Department.
- Refurbishment of the organic teaching laboratories is needed.
- Purchase of an additional high field NMR spectrometer (700-800 MHz) for biological research is desirable.
- Staff scientists for coordinating, training and running both the NMR and X-ray facilities are strongly needed.
- Extra effort should be made to have the laboratories and equipment of new faculty members ready before they begin employment.
- A special fund, possibly in the form of an endowment, for instrument repair needs to be created.

עיקרי המלצות מתוך הדוח של אוניברסיטת בר-אילן

- Faculty seminars to undergraduates to expose them to available tracks and research opportunities.
- Remodeling of the organic instructional laboratories in accord with modern safety codes and better instructional equipment. *This should be done as soon as possible; the need is critical.*
- Training and supervision of teaching assistants to make them as effective as possible.
- Better advising for chemistry students in order to give them advice concerning curriculum, track selection, research opportunities, graduate studies and career opportunities.
- M.Sc. and Ph.D. students should, upon admission to their programs, be guaranteed a minimal level of financial support for a set number of years.
- Sufficient elective courses that are relevant to particular graduate research programs should be offered.
- Ph.D. students should meet with their Thesis Committees periodically to review their progress.
- Start-up packages for new theoretical/computational appointments should be provided; the package should include staff support at the same level as for experimental scientists (50% technician or full postdoctoral support).
- Pro-active recruitment of female faculty members should be undertaken.
- Recruitment of faculty in the areas of organic synthesis, organometallic and analytical chemistry is strongly recommended.
- Greater effort should be made in looking for new faculty members in the international community.
- Revision of the departmental website to make it more compelling and informative is recommended. Instrumentation available in individual research laboratories should be listed on the Department website.
- An X-ray diffractometer for small molecule structure determinations should be purchased.
- BIU web access to all significant chemistry and related journals should be provided.
- Greater efforts and monetary resources should be used to promote visits by leading researchers from abroad; this recommendation includes the creation of named lectureships and visiting professorships.

עיקרי המלצות מתוך הדוח של אוניברסיטת תל-אביב

- Modify the undergraduate program to encourage undergraduate research during the academic year. Undergraduate research allows students to experience the excitement of investigative research and plays an important role in furthering the transition of undergraduate students into functioning scientists.
- Introduce more scholarships for B.Sc. students to enable undergraduate research during the summer.
- Monitor the dropout rate closely and take measures to reduce it when it becomes excessive.
- Problems with introductory math courses and physics laboratory discussed in the report should be addressed.
- The Advanced Analytical instructional laboratory should be made fully operational, and preferably located in an unshared laboratory space.
- The offerings of catch-up courses in science and math in the summer prior to entering the university should be enhanced.
 - Efforts should be made to raise stipend levels to account for the very high cost of living in the Tel Aviv area.
 - Students entering graduate study should be encouraged to enroll in the "Direct to Ph.D." program, and criteria for enrollment should be more flexible.
 - Career counseling for graduate students at all levels is recommended.
- Graduate student admission should not be linked to financial considerations of any specific faculty member.
 - Ph.D. students should receive more frequent feedback from their Thesis Committee throughout their program of study.
- Hiring of new faculty is expected to continue on an annual basis. Eight new hires should be made over the next 5 years. Greater effort should be made in searching for new faculty members within the international community
- Pro-active recruitment of female faculty members should be undertaken.
- The timing of tenure decisions should be extended by two years.
- Commencement of renovations for new appointments should be undertaken before new faculty arrives, with every effort to complete the renovation within 3 months of arrival.

עיקרי המלצות מתוך הדוח של האוניברסיטה העברית בירושלים

- Modify program to encourage undergraduate research during the academic year and obtain more scholarships for B.Sc. students for research during the summer.
- A more effective advising structure should be implemented. Students should be made aware of options in the program with regard to course and track selection, as well as research opportunities for B.Sc. students.
- Move one second-year laboratory course to a different semester to ease student laboratory course load.
- Efforts to reduce the teaching loads of M.Sc. and Ph.D. students while maintaining or increasing their levels of support should be made.
- Career counseling for graduate students at all levels is recommended.
- Graduate student admission should not be linked to financial considerations of any specific faculty member.

- Ph.D. students should receive feedback more often from their Review Boards throughout their program of study.
- For upper level graduate students, more writing activities and possibly a seminar in English should be encouraged to help improve facility with English for scientific communication
- Start-up packages for new faculty members should have separately budgeted renovation and equipment components. New faculty members should not be responsible for renovation costs.
- Commencement of renovations for new appointments should be undertaken before new faculty arrives, with every effort to complete the renovation within 3 months of arrival.
- More vigorous attempts to recruit the best young scientists to faculty positions regardless of nationality or citizenship
- Pro-active recruitment of female faculty members should be undertaken.
- A special fund for instrument repair is recommended.
- Consider replacement of the 600 MHz spectrometer if it cannot be repaired.
- Institute new funding mechanisms and programs to provide funds for mid-career and senior scientists for the purchase of new instrumentation and equipment and laboratory refurbishment

עיקרי המלצות מתוך הדוח של האוניברסיטה הפתוחה

- additional advanced level courses in chemistry, particularly in organic chemistry
- establishment of teaching laboratory sites through arrangements with universities in the north and south of Israel
- research projects for talented students with an appropriate university faculty member in laboratories close to where the students reside
- scholarship support for student research experiences in the summer
- addition of tutorials for chemistry classes at remote locations, even for small numbers of students, whenever possible
- establishment of arrangements for analyses using instrumentation (such as an NMR spectrometer) through service units of other universities, for analysis of samples prepared by students
- establishment of framework agreements with universities (in addition to TAU) for the research of OUI faculty members
- facilitation of the research activities of the senior faculty in a manner consistent with their expectations. This may require providing more resources in the way of supplies, equipment, and graduate student support
- assessment of the compensation and workload for the course coordinators and tutors on a regular basis.

עיקרי המלצות מתוך הדוח של הטכניון- מכון טכנולוגי לישראל

- Modify the undergraduate program to encourage undergraduate research during the academic year.
- Introduce more scholarships for B.Sc. students to enable summer undergraduate research.
- Training and supervision of teaching assistants beyond existing workshops must be done to make the TA's as effective as possible.
- Greater emphasis in the first-degree program on undergraduate research in the curriculum.
- Use the "Direct to Ph.D." track at the start of graduate studies.

- Reduce heavy teaching loads of M.Sc. and PhD students while maintaining or increasing their levels of support.
- Sufficient elective courses that are relevant to particular graduate research programs should be offered.
- Career counseling for graduate students at all levels is recommended.
- Graduate student admission should not be linked to financial considerations of any specific faculty member.
- Ph.D. students should receive feedback more often from their Review Boards throughout their program of study.
- M.Sc. and Ph.D. students should, upon admission to their programs, be guaranteed in advance a minimal level of financial support for a set number of years.
- There should be financial support and flexibility in academic deadlines for female students who have children.
- Resources and space to allow the hiring of six new faculty members over the next five years should be allocated.
- Greater effort should be made in looking for new faculty members in the international community.
- Pro-active recruitment of female faculty members should be undertaken.
- Greater mentoring of teaching assistants by senior faculty should be done.
- The research activities at the Institute and their external presentation are truly excellent. The only recommendation is to continue in the same manner.
- Maintain high-level support staff for shared equipment (e.g., following retirements).
- Teaching and research labs should be given priority regarding available space.
- Funds for mid-career purchases of new equipment and lab renovation should be made available when needed. Such a program should be implemented and coordinated through CHE, ISF and the Technion.

עיקרי המלצות מתוך הדוח של המרכז האוניברסיטאי אריאל בשומרון

- Course offerings in chemistry at the undergraduate level should be increased to broaden student exposure beyond biological chemistry.
- Students should be exposed to industrial chemistry and to I.P. concepts.
- Fellowships should be made available to talented undergraduates to encourage research projects during the summer in research laboratories.
- Career counseling for undergraduate students is recommended.
- Excellence of self-learning laboratory experiences analogous to the medicinal chemistry laboratory course should be implemented in other areas of chemistry.
- Maintain teaching staff level commensurate with expansion as needed with growth in the program.
- Additional space allocated for research is needed. This is discussed further in the report.
- The need for a new building for research laboratories should be developed further as discussed in the report.

עיקרי המלצות מתוך הדוח של מכון ויצמן למדע

- Efforts to engage undergraduate and high school students in chemistry at WIS are excellent and should be expanded as capacity and resources permit.
- WIS "primer" courses to bring graduate students with diverse backgrounds up to speed in modern chemical concepts such as in organic chemistry or chemical aspects of quantum mechanics should be offered.
- When possible, students should be encouraged to the "Direct to Ph.D." track to decrease overall time that would be spent in graduate studies.
- Expand international outreach/visiting student programs to recruit outstanding graduate students to the WIS.
- Increase efforts in faculty recruiting to include contact with a wider pool of international applicants.
- Target a possible hire in synthetic organic chemistry including complex-molecule synthesis because of its importance to pharmaceutical companies and its relatively low profile in the faculty as of June 2011.
- Major multi-P.I. research initiatives should build on key institutional strengths such as renewable energy.
- Planning for succession in research areas where WIS faculty members are expected to retire or leave should begin now.
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עיקרי המלצות מתוך הדוח הכללי של הוועדה

1. Greater emphasis in the first-degree program on undergraduate research in the curriculum.
2. Reduction in the number of the upper-level elective courses required in the Bachelor's degree to facilitate students doing research. This may also allow movement of small number of courses from the second year to the third to ease compression in the program.
3. Use of the "Direct to Ph.D." track more generally at the start of graduate studies.
4. Reduction in the number of formal course credits in the combined Masters-Doctoral program.
5. Greater use of English in advanced studies should be done, such as in the writing of the doctoral proposal.
6. Recruit the best new faculty through broader searches. There are legal questions here that need attention in the context of recruiting non-Israelis. The fact is that competition for talented new faculty around the world is getting more competitive, and if Israel wants to maintain its status as having some of the best chemistry programs while experiencing declining national interest in the subject, it will need to recruit more widely.
7. Recruit more women to Chemistry faculties. This may require special new programs and reexamination of criteria for new faculty candidates.
8. Institution of a funding program for mid-career and senior scientists to obtain funds for new equipment and laboratory refurbishment.
9. Increase efforts to have new laboratories ready for use within a few months of the arrival of new faculty.
