## Strategic plan for the Department of Chemistry, University of Oslo (UiO), 2021-2030

(Translated into English from the official Norwegian text by E. Uggerud, November 2022)
GOAL: The Department of Chemistry shall be the leader in Norway within research and research-based teaching of chemistry and be highly visible in the Norwegian public sphere and in international academic communities. In several areas, the department shall be an international leader.

In line with the process carried out at the department in 2020, the strategic plan that will lead us to the above goal is divided into seven chapters: common identity, teaching and education, research, support functions, advanced scientific equipment, visibility and dissemination, and recruitment and professional priorities. Each of the chapters sets out a number of specific measures, intended to support the overall objective.

Through a subsequent process, the department will create a plan for prioritization of permanent positions and investments in scientific equipment.

Later on, an open process will be initiated to reassess the department's organizational structure, with emphasis on transparency, effective administration, academic strength, cooperation, good use of infrastructure, a realistic assessment of available external instruments and safeguarding the balance between the academic environments that is required for a firstclass educational program. The structure must be flexible and sufficiently robust to be able to handle temporary center formations and external cooperation. The reorganization must lead to a unified and robust structure, and contribute to achieving the goal of being at the forefront of research, education and interaction with society.

This strategic plan will be revised in an open and broad process in connection with the Department moving into a new building, probably in 2026.

Annual action plans will be made and approved by the departmental board once a year.

## Common identity

In order to achieve the goal of being an outstanding and viable research and teaching community in chemistry, we will develop a stronger common identity. This is of critical importance in the encounter with other disciplines, in interaction with centers and other collaborative constellations, internally at UiO and with external partners - not the least with regard to the situation created upon moving into the new building. Our students and staff must first and foremost identify themselves with the department and the scientific discipline of chemistry.

We are all responsible for ensuring that each individual is well integrated into their local academic environment and at the department already upon arrival. We will treat each other with respect and support each other. In order to further develop collegiality and reduce barriers between sections, arenas for cooperation will be strengthened and common meeting places established.

The department's organizational chart will be updated continuously so that the department's employees get an overview of the department's sections, research groups and employees. The same applies to the organization of program councils and teaching groups.

For all management positions at the department, job descriptions with a description of the area of responsibility and authority should be available on the website for general information.

## Actions:

- Each individual is responsible for actively contributing to the department's endeavors through dissemination, research and teaching, as well as participate in board and committee work and contribute positively to the department's academic and social life.
- Monthly open meetings are held, where relevant issues are discussed. Thursdays between 14 and 16 are free from teaching and reserved for joint activities. Good meeting places will be made available for professional and social interaction. A joint lunch is held every week.
- Monthly department colloquia with presentations aimed at a broad audience of chemists are held at a fixed time. The program is coordinated with the Hassel and Almlöf-Gropen lectures and announced at the beginning of each semester. A system is established for advertising local seminaries, where everyone at the department is welcomed.
- A special Chemistry day will be arranged regularly, where the department gathers to hear lectures about the research in each section. Bachelor students who are going to choose the direction for their master's theses are encouraged to attend the chemistry day, where they can also meet possible supervisors from all parts of the department.
- The department will establish a procedure for integrating new Ph.D. and postdoctoral fellows, including an annual gathering where they are welcomed and get to know the department better. It is strongly encouraged that each master's and PhD student should have an active co-supervisor from another section. New employees in academic positions are assigned two mentors - one main mentor at the section and one from another part of the department.
- A messaging service is established where each new publication and graduated candidate is announced and marked.
- The department will facilitate follow-up of recommendations from performance appraisal interviews.


## Teaching and education

In order for the Department of Chemistry to offer the nation's best education in chemistry, with a strong connection to excellent research, we have a clear ambition that our bachelor's and master's programs will become the preferred study choices for high-school students from all over the country.

To achieve this, the department's teachers in close cooperation with the students must help trigger the students' own efforts, provide constructive feedback to the students, and ensure that the individual student is seen and heard. The department will further develop methods for student-active teaching and integrate the use of suitable pedagogical tools, including digital tools, into the teaching with the aim of achieving the learning outcomes. The overall teaching portfolio shall not be larger than that the academic staff are given sufficient time for research.

The current funding model for the department largely emphasizes the total number of completed credit points and the number of graduates. Measures to increase recruitment and reduce the drop-out rate will thus collectively contribute positively to the department economy, and is thus a common concern for all those employed at the institute.

## Measures for better teaching:

- The teaching portfolio must be self-sustaining. According to current guidelines, academic staff should spend about half of their normal working hours on teaching work, while permanent employees also should have the opportunity to have a sabbatical year every seventh year. To the extent the economy permits, parts of the laboratory supervision and colloquium instruction should be provided by suitable, advanced students.
- All academic staff must have the necessary academic breadth to teach basic courses in a Scandinavian language and must as a general rule contribute to the bachelor's teaching one semester a year.
- The department must ensure that the theoretical syllabus and practical laboratory work at least correspond to the curriculum at the foremost chemistry departments in the Nordic countries. The overall portfolio of advanced courses should be reviewed with the goal of reducing the number of courses and increasing the number of students in each course. The teaching shall, where relevant, help to highlight how chemistry contributes to achieving the UN's sustainability goals.
- The department is intensifying its efforts to integrate numerical methods and statistical modelling of data into teaching.
- The department supports the employees in their efforts to develop and document pedagogical competence. The department has the ambitions of at least one meritorious teacher in its ranks.
- The teaching of chemistry and materials science is coordinated with the faculty's other departments, especially with regard to moving into the new building. The goal of having more common courses across the faculty's departments must be pursued.
- The department should prepare measures to prevent dropout from the bachelor programs.
- An initiative in clarifying responsibilities between the program boards and the education committee, and in the coordination of teaching across the teaching group boundaries, and in the design and implementation of the individual courses.


## Measures for better student recruitment:

- The department will actively promote our study programs through social media and educational fairs and work to make these visible in the faculty's recruitment campaigns. All employees are responsible for contributing to increased recruitment to our study programs and thus also the department. Collaboration with industrial companies and alumni networks must be better utilized for recruitment. The effect of the various recruitment measures needs to be investigated, in particular visits of school classes to the department and visits to schools.
- The department shall utilize its network of contacts to make our study programs better known in upper secondary school and at all times have a person with the main responsibility for recruitment measures. Together with the department, the section for chemistry didactics will work actively to strengthen the quality of chemistry teaching in upper secondary school.
- The department's study programs are given names and programme descriptions that are comprehensive, attractive and well rooted in the department's central activities.
- Meetings are arranged between students and alumni every semester, often in connection with other events. In order to highlight career opportunities as a chemist, the department will identify where our graduates currently work and what they work with.
- A vital Department of chemistry is dependent on an active and attractive student environment. The department will help ensure that regular contact with wellfunctioning student associations and clubs, and support their activities. We will also contribute to improving the physical framework conditions for students in order to offer better social arenas in addition to the academic ones.


## Research

An outstanding Department of Chemistry must set high standards for the quality and relevance of the research carried out at the department. We shall be highly visible and publish our works in journals that set the highest academic standards. In order to succeed in the competition for research funding, the department must at all times, especially in the case of new appointments, ensure that our researchers maintain a level of knowledge that enables them to succeed at these venues.
The Department of Chemistry shall, based on its expertise in chemistry, further develop cooperation and academic interfaces with neighbouring disciplines such as physics, biology, geology and medicine. We need to communicate how our research and education supports national priorities and the UN Sustainable Development Goals. This is important for good access to research funding and for interaction with research institutes, administration and industry.

The Department of Chemistry will participate actively in selected interdisciplinary centres, and aims at all times to host one CoE (Centres of Excellence) and to participate in at least one SFI (Centre for Research-based Innovation) and one FME (Centre for Environment-friendly Energy Research). The department's good cooperation within interdisciplinary faculty centers such as SMN, CBA and dScience is important for the department.

The department sets the highest standards for accountability, significance, reproducibility and documentability in research. We shall at all times make every effort to ensure that the conclusions we publish are consistent with our own data and all available knowledge. We follow the Vancouver rules and support the Dora declaration.

## Actions:

- All permanent academic staff are expected to participate actively in the work of writing applications for external funding, nationally and internationally. The department will improve its support for application writing. Colleagues must support each other in their work on the design of such applications.
- The Department of Chemistry will work actively to support its employees, so that as many as possible succeed with NFR grants, participation in interdisciplinary centers, and we will facilitate hosting several ERC projects at all times.
- The department and the sections will seek to contribute to achieving the UN Sustainable Development Goals through websites and in other ways show students, business and authorities how our activities are closely linked to these goals.
- The department will encourage and facilitate patenting and entrepreneurship and will work for better central instruments and stronger incentives for researchers.


## Support functions

In order to be at the forefront in chemical teaching and research, the Department of Chemistry is completely dependent on having skilled employees in a well-organized, supportive and efficient administration and technical sections, and that there is proximity to the support functions employees and students need in their daily work. Both during the hiring process and during the entire career, the department ensures that the technical/administrative staff have suitable professional competence and, where needed, highly specialized expertise.

The administration takes care of daily operations and performs executive work to support teaching and research. The technical section shall provide services over a wide range. The administrative/ technical employees are a common resource for the entire department, to be led by the office manager and the technical manager, respectively. Normally, a significant part of the technical staff will be affiliated with a research section on a day-to-day basis.
Responsibilities, division of roles and academic affiliation for these are clarified through good dialogue with the department and the sections.

In the work to find a new organizational model for the department, the organization of the technical and administrative services will be assessed according to the department's overall needs and academic priorities.

## Actions:

- The department shall annually set aside funds for competence development for technical and administrative staff and forward courses from internal and external providers. Regular joint meetings are held for the employees.
- The department follows UiO's guidelines, procedures and regulations in its HSE work. The department ensures that the sections carry out self-certification for their areas before the annual safe inspection. The distribution of responsibilities between department management, section, HSE coordinator and the Department of Real Estate shall be clarified.
- Our most important tool in HSE work is the department's HSE handbook, which is continuously updated.
- The department will take its share of the responsibility for the apprenticeship scheme.


## Advanced scientific equipment and rental locations

In order to be at the forefront of Norway and strengthen us in the international arena, the Department of Chemistry is completely dependent on a state-of-the-art park of advanced scientific instruments. A significant challenge for the department is therefore the operation and financing of new advanced instruments and upgrades, as well as covering costs associated with operating these, including remuneration of associated technical staff.

Furthermore, priority must be given to having an updated and adequate IT-based infrastructure. Strengthening local IT research support will support this.

Access to international large-scale facilities, especially for X-ray and neutron radiation, and heavy computing resources are critical factors for scientific activity in the majority of sections at the Department of Chemistry.

In accordance with the university's regulations, the head of department makes the decision on investment in research infrastructure. At the same time, it is the responsibility of the head of department to have an overview of the tenants' finances and ensure responsible operation of these, including ensuring good technical and administrative support.

## Actions:

- In order to fulfil the institute's imposed responsibility for all the rental locations where the instruments are located at the institute and which involve the institute's employees in the operation, these must be affiliated with directly to the department and be included in and made visible in the institute accounts. In 2021, this will affect rental sites at the Department of Chemistry, which until then have been administratively linked to SMN. The administrative transfer to the department will take place in good cooperation with SMN and the relevant sections, and take care of the research activities at the center. In this context, it is emphasized that normal practice is for the head of department to delegate operational responsibility to the sections, which by agreement can delegate further to employees in the section.
- A fund is established - in line with a corresponding fund at the Department of Physics, as a guarantee for user fees for applications for external funding. On agreed terms, the institute will be able to provide loans to a rental site for required investments. Such a fund is established and managed in accordance with the University's accounting rules and it is assumed that sufficient opportunities will be provided for the transfer of the fund as unused funds. from one year to another.
- The department should encourage increased income to the of the rental sites ("leiesteder") in externally funded projects and assignments and provide easily accessible information on the rental sites' websites.
- All academic staff must contribute to income for the rental sites by fully financing their use in all external projects.
- The main rule should be that the rental sites are self-financing, but the department must be able to take a special responsibility for supporting and maintaining mission-critical instrumentation, among other things, as a commitment to master students and KDfunded research fellowships.
- The rental sites will be assessed in 2021 with regard to finances, hourly rates, operating model, website and investment plan to clarify responsibilities and expectations. The list of rental sites should be consolidated to optimize for external
financing. Rental sites with little turnover should, if possible, be wound up after careful consideration of the consideration of the consequences.
- It must be made clear which instruments and techniques the individual student or employee can receive training for and what teaching resources this requires, including actual costs.
- The department draws up a prioritized list of needs for new procurement of advanced instruments well in advance of RCN's infrastructure announcements and calls for proposals for UiO's AVIT program. The list is drawn up in dialogue with the heads of sections.
- The department ensures that a sensible division of labour is established between the faculty's departments, between Norwegian universities and with the institute sector for the operation and purchase of advanced scientific equipment.


## Visibility and dissemination

To ensure that the Department of Chemistry is clearly visible in society, we must be present in the Norwegian public sphere and show our relevance to technological development and the UN Sustainable Development Goals. We will convey a realistic picture of how chemistry contributes positively to social development, value creation and prosperity. Chemistry will be communicated as a subject with great practical application and significance, and where researchers are driven by their curiosity to find answers to basic questions about nature.

Our most important information channel is the website, which must be continuously maintained and updated.

## Efforts:

- The websites for each employee, section and rental site should be updated annually. All employees must contribute with the content, and the department must establish structures, routines and responsibility for this. In addition, an annual day is reserved for this work.
- The connection between our research and the UN Sustainable Development Goals must be made visible through the sections' websites, topic pages and via the department's own websites.
- In all dissemination, a clear language with few acronyms must be used. The words Chemistry, Department of Chemistry and UiO should recur, also in the designations of the research sections and underlying research groups.
- The department will consider hiring a full-time communications adviser.
- A resource group of employees engaged in scientific outreach and dissemination is established to share experiences and for reciprocal support.
- The effect of the school visit scheme will be investigated with a possible continuation of the scheme and coordination with the faculty's efforts vis-à-vis upper secondary schools, where students visit their old schools.
- The department must work systematically and energetically to better profile its study programs in the faculty's and university's recruitment campaigns.
- Employees and students are encouraged to participate in outreach activities through social media, blogs, newspapers, TV, radio or press releases and in further and adult education. In the public sphere, it must be clearly stated who the person representswhether it is the department, him- or herself, or other interests.


## Recruitment to positions and professional priorities

In order to develop excellent environments for research and teaching in chemistry, a good recruitment policy is of paramount importance. On several occasions, it has proved difficult to initiate completely new research activities at the Department of Chemistry without these being well anchored in existing activities. As a main principle, new recruitment must be based on existing academic strength, particularly in developing fields. However, there should be no automatic mechanism in replacing a retiring employee with a younger person with the same field. The department aims to develop top research environments through new recruitment, but must at the same time make sure that individual areas do not grow disproportionately large so that over time we are not able to cover breadth and necessary subdisciplines in teaching.

## Guidelines and measures:

- Announcements and appointments to assistant professorships and professorships shall take place through transparent and open processes. The text of the call must be broadly worded so that we attract a wide range of very well-qualified applicants. The evaluation committee should have a solid and broad international composition and the interview committee should consist of assistant professors and professors from at least two different sections.
- Prior to the announcement, it must be made clear that the necessary scientific instrumentation and other infrastructure and technical support for the position will be available.
- Recruitment of the best candidates regardless of gender, ethnicity, religion, functional ability, sexual orientation, socioeconomic background, etc., is important for developing the department and strengthening our international position in research, education and innovation. In the absence of a professionally strong and suitable applicant, an advertised position must be withdrawn or advertised again.
- We should preferably hire in assistant professor positions and only in exceptional cases full professorships.
- Everyone who is employed in academic positions with a teaching obligation must be able to teach the 1000 -line of courses offered at the department.
- New employees are offered somewhat reduced teaching duties for the first two years and financial support to get started with research and teaching. The department shall provide support to and inform about the offer of Norwegian language lessons so that new employees are able to teach in Norwegian
after two years, according to the standard employment contract. New employees are assigned a main mentor from their own section and a mentor from another section for the first two years.
- Supervisors are expected to encourage their most skilled PhD candidates to apply to prominent foreign academic environments for postdoctoral stays.
- The department will establish regular routines for receiving new employees, contribute to the necessary practical support during the activation phase and ensure that they are well integrated in their new workplace.
- The department shall contribute to planning career paths for internally or externally funded postdoctoral fellows, PhD candidates and young researchers. Responsibilities for this need to be clarified.
- The department will work continuously to identify and develop research leadership talents.
- To ensure that the most talented master's students, irrespective of cohort, have the opportunity to take the PhD degree, the department will work to ensure that we have greater control over our own KD-scholarship positions, which are advertised in open competition without specifying the research area. The department's ambition is to have up to three postdoctoral positions of its own if this does not conflict with the need for PhD candidates and teaching staff for teaching.
- The department relies on a staff of well-qualified employees in administration and technical positions. Appointments must take place in similar open processes as for academic staff, and support the department's core activities and academic priorities.

