Action plan at the Department of Chemistry for gender balance, equality and diversity. Version October, 2022.

1. Developing gender aspects of our culture

Goal 1.1: Develop insight into cultural barriers toward gender equality and balance.
Action 1: In-depth analysis through interviews with members of research groups.
In detail: Increasing the awareness of own cultural barriers may be facilitated by comparison to other cultures. For instance, the increased social support (such as well-developed child care system, extensive maternity and paternity leaves, and the general level of gender equality in society) in Norway would lead one to expect that the percentage of women chemistry professors in Norway would be greater than in the US. This is not the case; a fact that forms the basis of the project "Decoding the Social and Institutional Barriers for Women Faculty in Chemistry in Norway and the US", led by professor Susan Pedigo, UMass. She will spend the spring of 2023 at our department, primarily using an approach of participatory observation in the labs, but also interviewing both men and women faculty regarding: a) factors that affected career choice, and retention in career path; b) commitment to mentoring trainees; and c) quality of life issues including work/life balance. The full project is developed into a Fulbright application for the AY 2023/24, to be carried out at UiB and UiO.

Goal 1.2: To develop a common frame of reference for gender balance and -equality at the department, including central concepts such as "aggregated disadvantage" ("akkumulert ulempe") and "implicit bias".
Action: Fact-based exposition of gender balance and equality in academia will be an annually recurring theme in the department seminar series, starting in the fall of 2022.

Goal 1.3: Ongoing focus on gender aspects of the workplace culture and our educational environment.
Action: Gender balance and equality is included in the systematic HSE effort as follows: (i) Gender aspects are included in information gathering leading up to and the work taking place at the annual HSE general assembly ("HMS møte og -dag") at the department. (ii) Progress toward the present plan should be reported to the department board in their last meeting of the spring term. (iii) The present plan should be revised as part of the regular revision process for the local HSE action plan.

Goal 1.4: Use our strategic and active priorities toward gender balance as a platform for gender-balanced recruitment.
Action: Present plans and actions at our homepage and make use of it in recruitment drives.

2. Measures to improve the gender balance in permanent scientific positions and in research management

While the number of permanently employed associate and full professors has varied between 23 and 27 and thus been quite stable since 2014, the percentage of females in this category has developed favorably from 13% in 2014/15 and 17% in 2016, it increased to the low twenties in 2017 and is now 24%. This development is largely a result of ongoing focus on gender balance in recruitment, and it is encouraging in the sense that change is possible. Still, the situation is far from satisfactory: only one in four full professors is female, and even worse for associate professors: one in five. Moreover, the department has two permanently employed researchers; both male. On the positive side, the department enters a decade with considerable turn-over among the permanent scientific staff: seven vacancies will arise in 2022-2032, in addition to one new position added to the department. If half of these eight positions are filled by women, it would increase the percentage of females from 24% to 31% in this category.

Goal 2.1: Increasing the percentage of female associate and full professors to 30% by 2032.
Action: Recruitment processes with full dedication to the following three measures: (i) Job descriptions/ads should be reviewed with the aim to make the positions attractive to both genders. (ii) The department takes active initiatives to identify and motivate competitive female potential applicants. (iii) The department focuses on identifying, supporting and successfully recruiting internal female talents. (iv) Entry-level positions are used for facilitating the recruitment of female talents.
Goal 2.2 The present gender imbalance combined with formal requirements dictating both genders to be present in most committees, lead to female employees shouldering an unproportionally large fraction of administrative academic work, at the expense of time for more meriting research work. Our goal is gender neutral distribution of administrative work between academic employees.
Action: The department should (i) maintain an overview over administrative assignments to each scientific employee, (ii) strive to refrain from recruiting our female scientist to administrative tasks when not explicitly laid down in regulations, and (iii) when required by regulations, assign the more meriting task to the female representative. To exemplify: in the evaluation of ph.d. theses, female scientists should be invited as opponents rather than serving as local "3rd members" (coordinators).

3. Measures to improve the gender balance in other job categories

Gender balance varies much between different categories of employees, cf Table 1. On the positive side, four of the seven adjoint (assoc. or full) professors (57%) are women, showing that there is a potential for better balance following targeted recruitment. The most important and challenging task is to achieve better gender balance in the recruitment to early-stage scientific positions past phd-positions, as this has a direct impact on the recruitment base to permanent positions. Only about one in five (20%) postdocs are female; one-in-three for researchers.

Goal 3.1: PhD students and early-stage scientist are well informed about career opportunities in and outside academia, including strategic choices toward an academic pathway.

Action: Every semester, the department fields one seminar dedicated to promoting information about and interest in academic career moves, with emphasizing the need for a diverse work force also in this part of professional life.

Goal 3.2: Increase the percentage of female post docs and researchers to 30% by end of 2025.
Action: For each position, the department appoints and charges a search committee with actively identifying and motivating competitive female potential applicants.

Both the technical and administrative staff is largely dominated by females (75% combined), and there is a need to strive for better gender balance also in these categories.
Goal 3.3: Increase the percentage of men in technical and administrative positions.
Action 6: Closely review job descriptions from the perspective of making jobs more attractive to men.

4. Measures to improve the gender balance in education

The **BSc-program in chemistry** is evenly balanced genderwise both in recruitment and completion, cf Table 2. This is true also for the **MSc-program**. Apart from a slightly higher ratio of females taking up master studies than those successfully graduating with a BSc-degree in chemistry, there is little in these numbers that points to serious gender bias. A similarly stable gender distribution from recruitment into the BSc-program to graduating with a master's degree, is evident also in the **nanoS&T-programs**, albeit with only one-third of the students being female. Conversely, the rather recent 5-yrs integrated MSc-program in **Medical technology** shows a bias in the opposite direction: 73% female students (2017-2022). On average, our student population is well balanced genderwise and no special measured are warranted.

PhD-Education
According to Table 3, 43% of all PhD-degrees issued from the department 2016-2022 were awarded to females. This number is in fair agreement with the fraction of female master's graduates from the chemistry and nano programs at the department and suggests that the recruitment process is reasonably gender neutral. However, both statistics and the implied assumption that PhD students are mostly recruited from own graduates are weak. Comparing the chemistry departments at the universities of Oslo and Bergen, we find that in the period 2018-2021, the percentage of PhD degrees achieved by female students is essentially equal for the two departments, at a rather disappointing 36%.

To increase resolution, we consider all PhD students accepted into the program over the period Sept. 2012- Sept 2022, and their subsequent history, cf Table 4. The percentage of female students accepted into the PhD program during this 10-year interval is 36%, which is on par with the percentage of female graduates from the nanoscience program, but notably lower than the corresponding number from the chemistry program. A possible explanation is that many students are recruited from overseas, or within subdisciplines with lower percentage of female graduates. Moreover, while the percentage of students having successfully completed the PhD program is almost the same for men and women, a significantly higher percentage of male as compared to female PhD students choose to end their studies without having obtained a doctoral degree. This implies that a higher fraction

of female than male students are still active and may still complete successfully. This may be interpreted as consequence of extended leaves and/or loss of continuity associated with childbirth. Moreover, the higher retention factor for female PhD students serves to inflate the percentage of females in the population of active PhD students.

Goal 4.1: Increase the completion rate among PhD students.
Action: (i) The goal is highlighted in the new strategy of the department. (ii) The Board of PhD education will be charged with identifying and implementing possible measures.
Goal 4.2: MSc-candidates are well informed about career opportunities in and outside academia, including strategic choices toward an academic pathway.
Action: (i) Every semester, the department fields one seminar dedicated to promoting information about and interest in academic career moves, with emphasizing the need for a diverse work force also in this part of professional life. (ii) PhD is presented with a stand during "Karriere-dag" and similar events.

5. Work with diversity and inclusion

Gender is but one aspect of diversity and inclusion. Our work force and student community are diversifying, and this demands more attention to the strengths that this is lending the department, but also to mechanisms of social inclusion and insight and participation in various organizational bodies.

Goal 5.1: Building a cohesive department with a set of shared values and goals.
Action: Making this goal part of the department strategy that is under construction.
Action: Making aspects of diversity and inclusion topics at department gatherings.

Goal 5.2: Making documents for policy, strategy, and practical procedures available to all concerned.
Action: Make such documents available in English, or English and Norwegian.

Tables

Table 1 Gender balance among different categories of employees

Category of employees	2015-2021		Per Oct 1, 2022	
	Avg.	%F	Number	%F
Assoc. prof.	25		10	20
Prof.		20%	15	27
Researcher	4	31%	3	33
Post doctor	6.5	18%	5	20
Ph.d. stipend			25	48
(Assoc./Full) prof. II			7	57
Scientific, all	59	30%	58	34
Technical	11.5	58%	10	80
Administrative	6	85%	6	67

Table 2 Recruitment and completed degrees 2012-2022

Program	BSc-program				MSc-program			
	Started		Completed		Started		Completed	
	N[a]	**%F**[b]	N	**%F**	N	**%F**	N	**%F**
Chemistry	364	**49.7**	150	**48.7**	216	**53.7**	169	**53.3**
Nanotechnol./Science	242	**33.1**	104	**33**	60	**35**	50	**36**

[a]Number of students. [b]Percentage of females

Table 3 Comparative statistics of completed PhD degrees at the chemistry departments at University of Oslo and Bergen.

Dissertation year →		2016	2017	2018	2019	2020	2021	2022	Sum	%F[a]
UiB \KI	Women	1	4	3	2	2	2	2	16	43%
UiB \KI	Total	5	5	8	3	7	7	3	37	
UiO \KI	Women	1	2	8	1	7	6		25	30%
UiO \KI	Total	8	16	19	9	19	13		84	

[a]Percentage females

Table 4 Gender-resolved status of candidates accepted into the PhD program since Sept. 2012

Gender	Starting up	Quit	Completed	Still active
Female	26 (36% of all)	3 (12% of F)	10 (38% of F)	13 (50% of F)
Male	46 (64% of all)	11 (24% of M)	16 (35% of M)	19 (41% of M)