
Chemical Society Annual Report to the EuCheMS Division of Chemical Education for 2018-2019¹

1. Abstract

In the end of 2018 and beginning of 2019, the focus has been on the International Year of the Periodic Table. Moreover, the chemistry curriculum for grade 1-9 is re-written by the National Agency for Education with intentions to have fewer core content areas and to make the knowledge requirements more explicit.

2. National educational policy

In Sweden, chemistry is taught as a part of an integrated science subject at the lower primary level (grade 0-3). From grade 4, chemistry is a mandatory subject for all students up until grade 9. At upper secondary level, grade 10-12, chemistry is studied by students who apply for two out of 18 national programmes (i.e., the Natural science programme and the Technology programme). Between 20 and 25% of an age group takes chemistry courses at upper secondary level. At tertiary/university level, chemistry has had difficulties attracting students, and this is also true for recruitment of teacher education students specialising in chemistry as one of their majors. Right now, there is a clear lack of teachers in schools for almost all subjects, and schools continue to face significant challenges hiring teachers qualified to teach chemistry. To enhance the number of chemistry teachers, a new teacher education program has been introduced where those with previous university education in disciplines relevant for school education can undertake an accelerated teaching training program for graduates within one year, rather than the usual 18 months. This is, for example, a way for science researchers or engineers to change track and become science teachers. This new path has been successful to attract new teachers. Additional financial incentive programs have also been put in place. An earlier program for higher study grants for those undertaking the teaching degree program for graduates in STEM subjects has now been extended to all subjects (~760€/month, opposed to the ~340€/month standard study grant – these are in addition to study loans that students may be eligible to apply for). Furthermore, an additional five-year program is on-going to particularly incentivise those with research degrees to re-train as teachers. Those accepted into this accelerated, one-year program are eligible to study grants of 25 000 SEK (~2500 €) per month.

¹June 2018- May 2019, all levels of chemistry education: primary, secondary schools, universities, LLL, general and vocational education.

3. Events in chemical education

The International Year of the Periodic Table has given possibilities to produce several activities for teachers and students. All material is presented at the national website where some material is also in English, <http://iypt2019.se>

We are launching a video competition, several radio- and tv-shows, the universities are getting their “own compounds” and more.

4. Activities of the National Chemical Society

The society has in recent years unfortunately had problems attracting new members. This decline has been ongoing over the last 10 years and today the society has fewer than 2500 paying members organized in 11 divisions, where the Chemistry Education Division was one until 2016. Today this division is downgraded to a committee where the board only consists of 3 members with mainly me being active, instead of 10. In 2019, a Swedish deputy for the EuChemS Division of Chemical Education has been elected (i.e., Felix Ho), and hopefully he could be connected also to the Swedish committee. Since the committee has no own funding, it has been problematic to be put time to work with chemical education issues.

- The Committee of Chemical Education co-hosts an annual two-day meeting (“Berzelius days”) where 300-400 students in the end of upper secondary school from the Natural Science Programme and Technology Programme meet and listen to chemistry lectures (often one Nobel laureate or similar). At the “Berzelius days” chemistry teachers are also having a program where they meet and discuss chemistry education. Moreover, one prize is annually given to an important person who has contributed to chemistry education. <https://www.berzeliusdagarna.se>
- Last year’s Day of Chemistry was held in October with the theme of “chemistry of life”, this year the theme is chemistry important for life. Schools can order free of charge experiment packs with things to do with students in school: <https://www.ikem.se/ikem-skola/kemins-dag/>
- In-service training courses for chemistry teachers, for instance courses on experiments are held every year within the society. <http://www.nokemi.se>

5. Publications

Previously, The Swedish Chemical Society has until 2018 published 8 issues of a magazine (Kemisk Tidskrift - Kemivärlden Biotech) every year with chemistry news and articles about chemistry and chemistry education research. Once a year, the journal is published in English. <https://www.kemivarldenbiotech.se>. Another magazine is now produced, but unfortunately, due to financial restrictions, only one issue has been published so far during 2019. <https://kemisamfundet.se/kemisk-tidskrift/>

6. Liaison with the chemical industry

The important collaboration between chemical industry and society is through IKEM Innovation and Chemical Industries in Sweden is an industrial and employer organization representing around 1 400 Swedish and foreign-owned companies with more than 70 000 employees. Member companies work in a broad cross-section of the chemical industry both as producers, distributors and users. http://www.ikem.se/in_english

7. International and European initiatives

The Division of Chemistry Education has delegates as leaders in the International Chemistry Olympiad (IChO) and the European Science Olympiad (EUSO) where students participate every year.

8. Other events and activities

n/a

9. Name of delegate and deputy

Karolina Broman and Felix Ho.

10. Contact details of delegates.

Karolina Broman
Department of Science and Mathematics Education
Umeå university
SE-90187 Umeå
Sweden
karolina.broman@umu.se

Felix Ho (deputy)
Department of Chemistry – Ångström Laboratory
Uppsala University
Box 523
SE-75120 Uppsala
Sweden
felix.ho@kemi.uu.se

11. CV of delegate.

Previously submitted.