



Stockholm
University

After graduation VI

- biology graduates and the labour market 2015



Foreword

This is a summary of the responses from alumni in the biology subjects to 'Efter studierna VI', an alumni survey conducted at the Faculty of Science, Stockholm University. You can find the original report in Swedish at science.su.se. A total of 890 responses were received from natural science alumni that did their degree project or received their degree during the years 2010-2013. This summary reports on the responses from 129 biologist, 45 molecular biologist and 36 marine biologists.

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Background data

About 90 % of respondents had completed a degree and about 80 % had studied courses at advanced level (figure 1). Gender distribution was biased towards women in all three subjects (figure 2). More than 75 % of the respondents completed their degree project at Stockholm University and about 10 % did their degree project at an external organisation (figure 3).

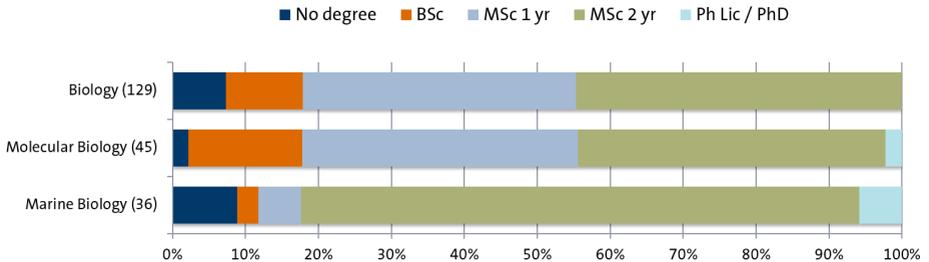


Figure 1. Proportion of different degrees for the three biology subjects. Figures in parentheses show the number of responses.

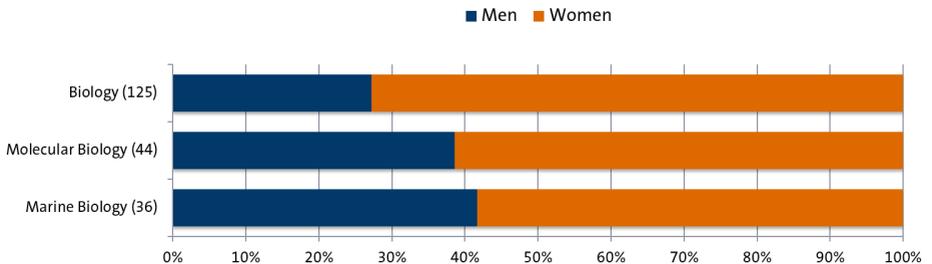


Figure 2. Distribution of gender in the three biology subjects. Figures in parentheses show the number of responses.

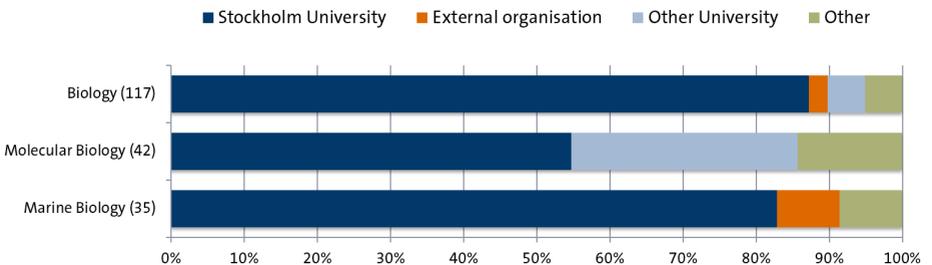


Figure 3. Proportion of respondents that performed their master's degree project at different organisations. Figures in parentheses show the number of responses.

The alumni's view on the biology education

About 88 % of respondents were satisfied or definitely satisfied with their education (figure 4), and 65 % of the respondents say they would recommend the biology education at Stockholm University to others (figure 5).

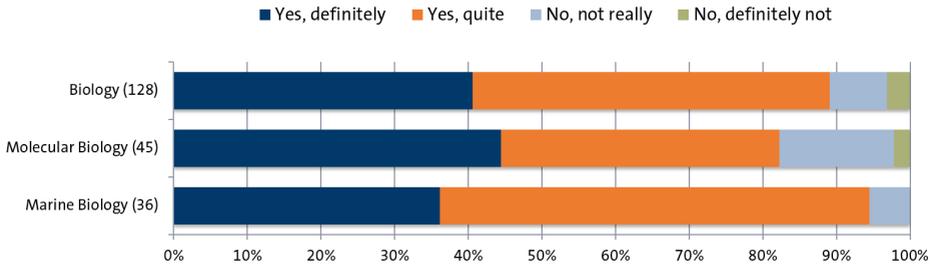


Figure 4. Proportion of respondents satisfied with their education. Figures in parentheses show the number of responses.

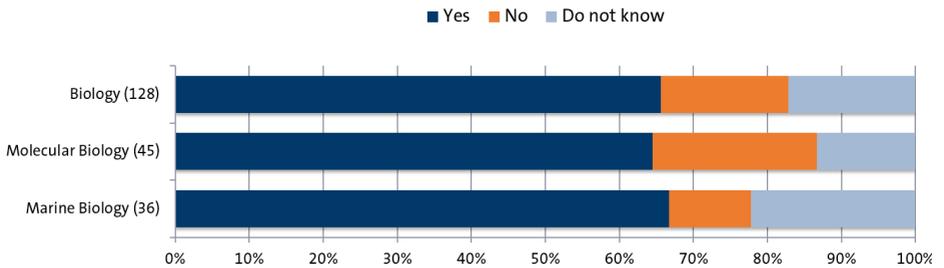


Figure 5. Proportion of respondents that would recommend the biology education to others. Figures in parentheses show the number of responses.

Evaluation of achieved competence

Respondents estimated their achieved competency for 19 knowledge areas and skills (table 1) within their education according to the scale: very insufficient (1) – partly insufficient (2) – good (3) – very good (4). In general most respondents concluded that their achieved competency to be good or very good. There is, however, some variation among different skills and between the three subjects (figure 6).

Table 1. The respondents evaluated their achieved knowledge and skills in 19 different areas.

Knowledge:
the main field of study
the scientific basis of the subject
laboratory techniques
field studies
current research questions
Skills:
find and evaluate new knowledge
critically analyse and discuss problems
argue and convince
independently identify and solve problems
follow the development of knowledge
teach
process statistical material
make oral presentations
make written presentations
present in English
make ethical evaluations
explain to laypeople
work in a group
project management

The respondents identified shortcomings in their achieved competency when it came to statistics, teaching, project management, ethical evaluation and explaining to laypeople (figure 6). Between 37 % and 46 % indicated that they had achieved insufficient or very insufficient competency in these areas. For both teaching and project management, the shortcoming could be explained by the fact that these topics are not included in the degree objectives. However, statistics, explaining to laypeople and ethical evaluations are skills that are defined in the objectives and thus deserve further attention when planning courses in the future.

In general alumni were very satisfied with their achieved knowledge of the scientific basis of the subject, working in groups, knowledge of the subject and how to find and evaluate new knowledge. In all these topics over 90 % of the respondents estimated that they have achieved good or very good competency (figure 6).

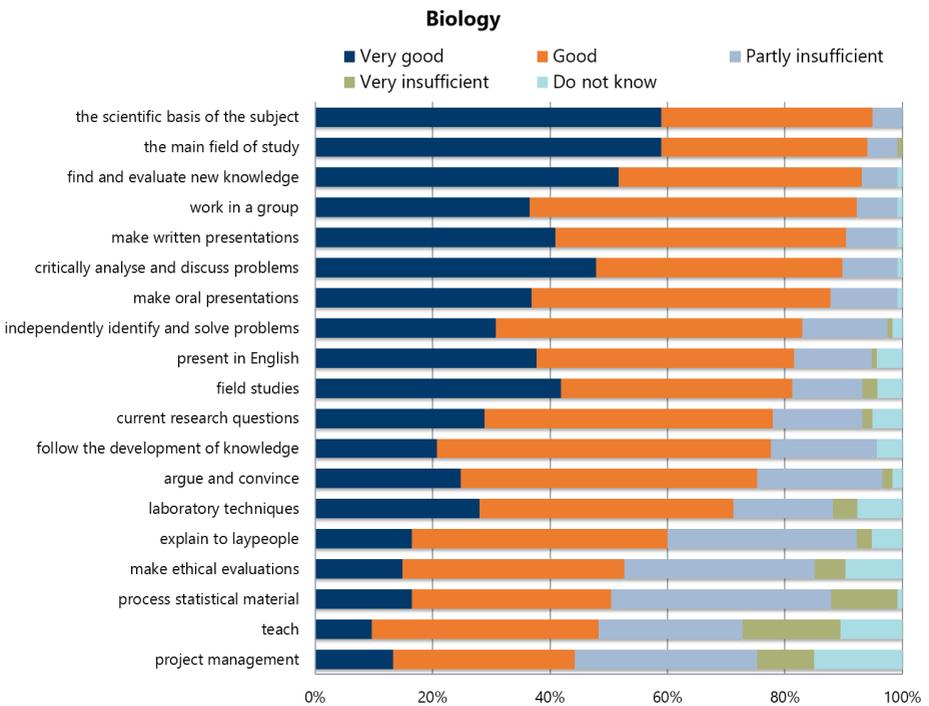
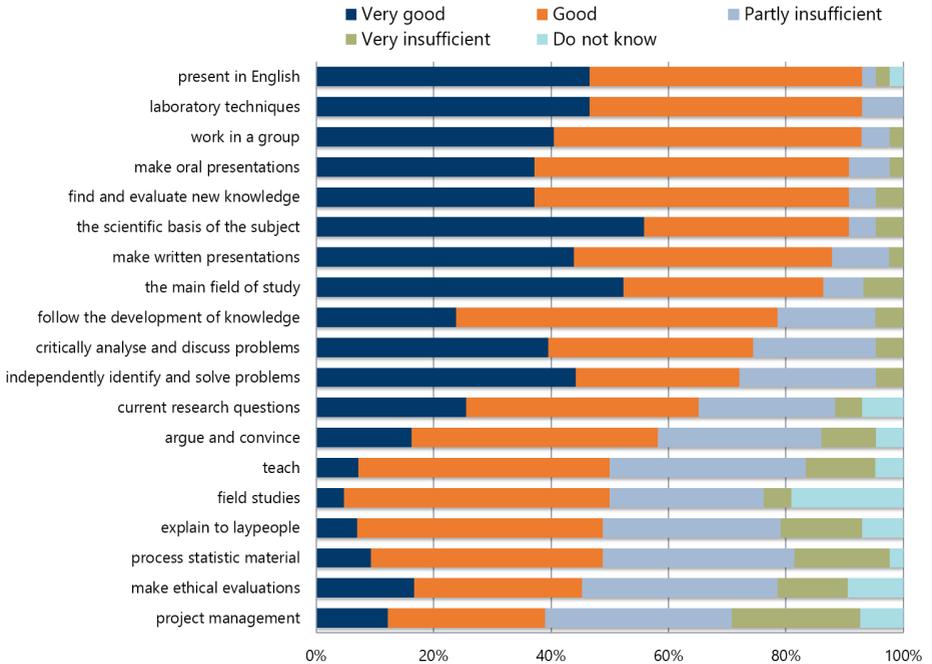
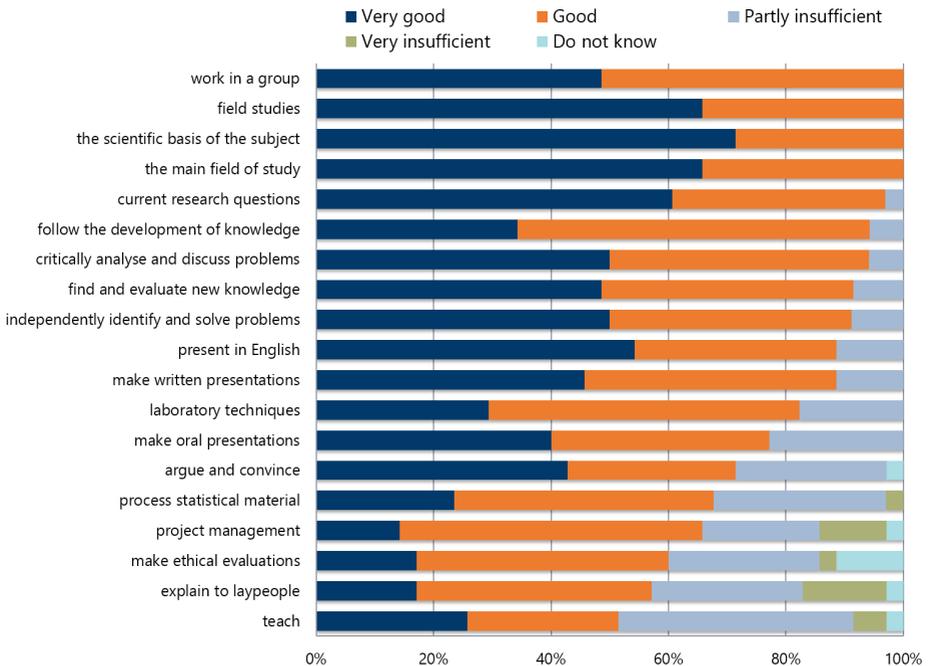


Figure 6. Proportions of the respondents that estimated their achieved competency (19 areas) for each biology subject respectively. Number of respondents varied for the different questions: 113-118 for biology, 33-35 for molecular biology and 41-44 for marine biology.

Molecular Biology



Marine Biology



Merits and shortcomings in the biology education

In total 58 % of the respondents considered parts of their education especially valuable. Many biologists and marine biologists emphasised the practical training during field studies as most valuable. Furthermore, enthusiastic and dedicated teachers and supervisors, statistical courses, experience gained during the degree project, and traineeship or other courses with labour market links were mentioned as valuable by biologists' and marine biologists' (table 2). Molecular biologists especially considered the practical training during lab work, courses with links to the labour market and research, and the flexibility to choose from a wide selection of courses, as the most valuable aspects of their education (table 2).

About 73 % of all respondents identified aspects missing from their education. As in earlier surveys the main shortcoming in all three biology subjects was a lack of links to the labour market (table 3). Biologists and marine biologists also requested more courses on statistics as well as training in both written and oral presentation, while molecular biologists requested more courses from different areas.

Table 2. Proportion of respondents (%) that identified particular aspects as especially valuable in their education. Figures in parentheses show the number of responses.

	Biology (66)	Marine Biology (20)	Molecular Biology (17)
Practical training (field/lab)	47	40	24
Teachers/supervisors	12	10	0
Connection to working life/ trainee course	11	5	12
Degree project	8	10	6
Range of courses offered	5	0	6
Statistical training	5	15	0
Interdisciplinary content	5	0	0
Presentation skills	3	0	0
Scientific process	3	0	6
Connection to research	2	5	12
Flexibility in education	2	0	18
Other	0	15	18

Table 3. Proportion of respondents (%) that identified particular shortcomings in their education. Figures in parentheses show the number of responses.

	Biology (82)	Marine Biology (27)	Molecular Biology (28)
Lack of connection to working life/ trainee courses	63	48	57
Lack of statistics	10	22	0
Lack of engaged teachers	4	0	0
Lack of training in presentation skills	4	11	0
Small range of courses offered	20	0	11
Other	0	19	32

Links to the labour market and research

About 80 % of respondents thought that there was insufficient or very insufficient links to the labour market in the education (figure 7). On the other hand links to research was considered very good (figure 8).

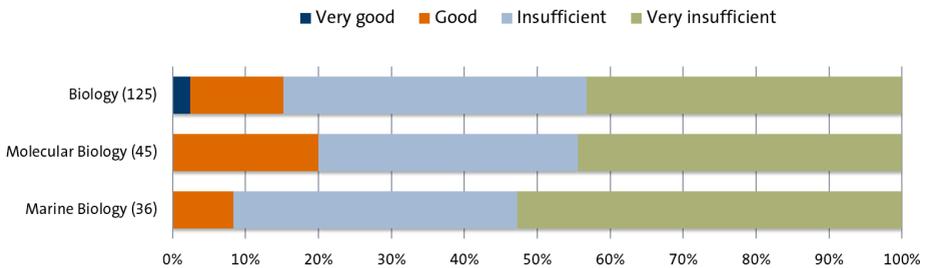


Figure 7. Proportion of the respondents estimating the quality of labour market links in the biology education. Figures in parentheses show the number of responses.

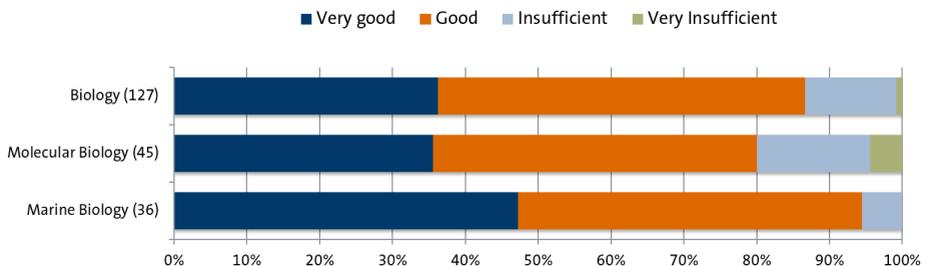


Figure 8. Proportion of the respondents estimating the quality of connection to research in their education. Figures in parentheses show the number of responses.

Labour market

About 60 - 70 % of respondents had some form of employment (permanent, temporary or PhD-student) or ran their own business (figure 9). On average 7.3 % were job seekers (figure 9), which can be compared to figures from Statistics Sweden (SCB) who reported 6.7 % unemployment in Sweden in September 2015. About 15 - 20 % of respondents were PhD-students (figure 9).

Most of the alumni got their first job either by contacting the employer themselves or through advertisement (figure 10). Only 6 % got their job through an employment service.

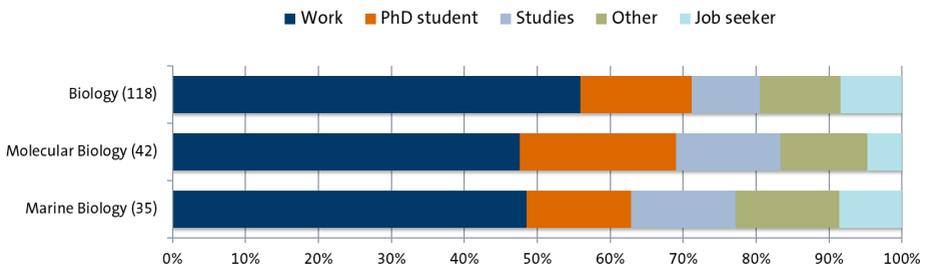


Figure 9. Proportion of respondents in different occupations for the three biology subjects. Work includes permanent and temporary employment and own business. Other includes parental leave and other occupations. Figures in parentheses show the number of responses.

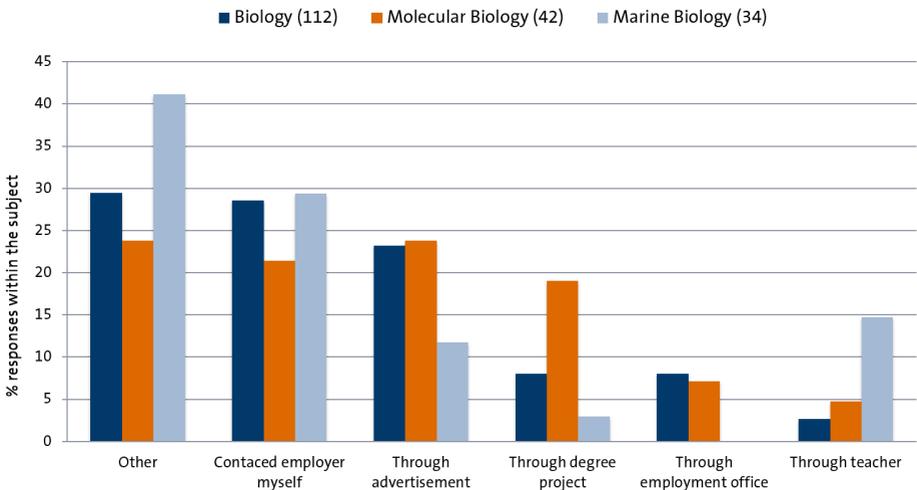


Figure 10. Proportion of answers to the question how the first employment was achieved. Figures in parentheses show the number of responses.

Employers

The most common employer among respondents were universities (35 % are employed by universities). Within universities, Stockholm University and Karolinska institutet were the biggest employers. Other common employers were local authorities (table 4).

Table 4. Present employers divided by the three subjects. Figures show how many respondents are employed.

	Total	Biology	Marine Biology	Molecular Biology
Universities: Stockholm University	19	13	3	3
Municipalities	16	13	3	
Universities: Karolinska Institutet	11	2		9
County Administrative Boards	9	8	1	
AstraZeneca	5	3		2
Own firm	3	1	1	1
Employer	3		3	
AcadeMedia AB	2	1		1
Karolinska universitetssjukhuset	2	1		1
Universities: KTH Royal Institute of Technology	2	1		1
Universities: Södertörn University	2	2		
ALS Scandinavia	1	1		
Animallogos AB, Djurgymnasiet Stockholm	1	1		
APL	1	1		
Atlas Copco	1			1
Cepheid AB	1			1
Cherry Spelglädje AB	1	1		
Cristie Nordic	1	1		
DBB	1			1
Didaktus Jakobsberg AB	1	1		
Ekologiska säljbolaget	1	1		
HERON Evidence Development	1			1
HSB Södertörn	1	1		

Kulturama Gymnasium, Medborgarskolan	1	1		
Laponiatjuottjudus	1	1		
Ludwig Institutet	1			1
Lystra	1	1		
Lärande i Sverige AB	1	1		
Läraryrmedlarna	1		1	
Manpower, AstraZeneca	1	1		
Marina läroverket	1	1		
Metria AB	1	1		
Mevex AB	1		1	
Naturhistoriska Riksmuseet	1	1		
Naturskyddsföreningen	1	1		
NCC	1		1	
Poolia	1	1		
Postnord	1	1		
Publicist Lifebrands Resolute	1			1
Ramböll Sverige AB	1			1
Scandinavian Gene Synthesis AB	1			1
SSL	1			1
SteamTeam Nordic AB	1		1	
Stockholm Environment Institute	1	1		
Stockholm Resilience Centre	1	1		
Svea ekonomi AB	1	1		
Svenska Geologisk Undersökning	1	1		
Univ/Högskola: University of Nottingham	1	1		
Univ/Högskola: Wiens universitet	1	1		
WorldFish	1		1	
Överumans Fisk AB	1		1	
Total	114	70	17	27

Job assignments

More than 50 % of respondents felt that their education was highly relevant for their current work. There was some variation, however, between subjects (figure 11). The most common job assignment among respondents for all three subjects was research and development. Biologists also often work as teachers, while marine biologists also report working with investigation and planning (figure 12). Both education, work experience and experience from traineeships were considered as important or very important for the present work assignments, with some variation between the subjects (figure 13). Experience gained from working in student organisations, however, was not considered to be particularly important.

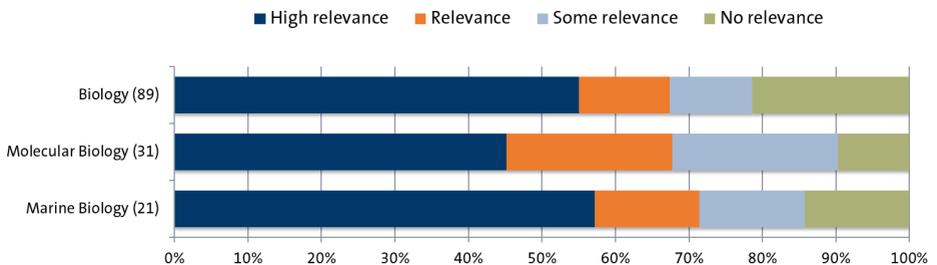
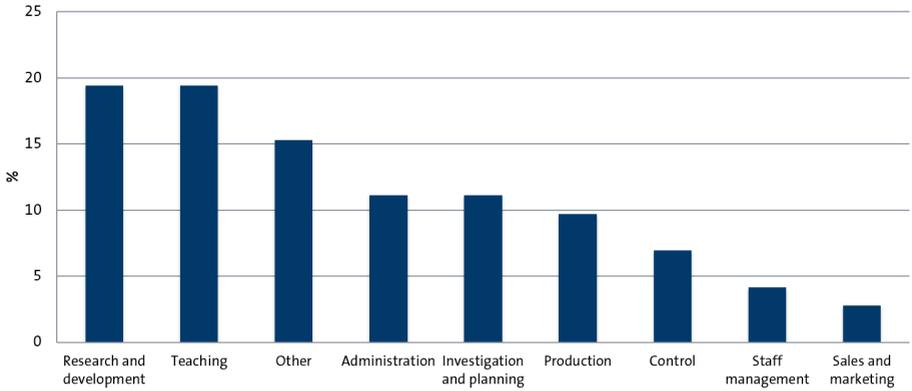
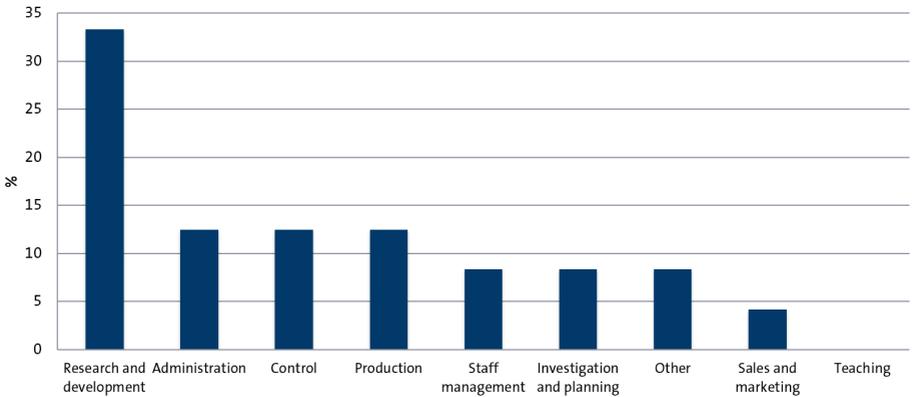


Figure 11. Relevance of the education for the present work. Figures in brackets represent number of answers.

Biology (72)



Molecular Biology (24)



Marine Biology (20)

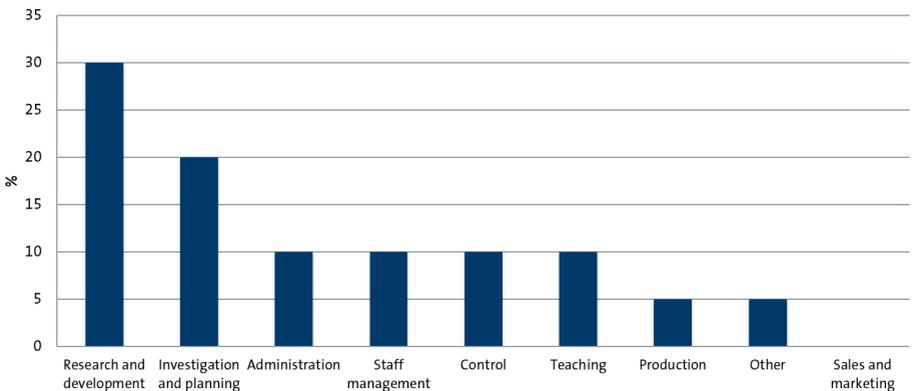


Figure 12. Proportion of job assignments for the three subjects respectively. Figures in parentheses show the number of responses.

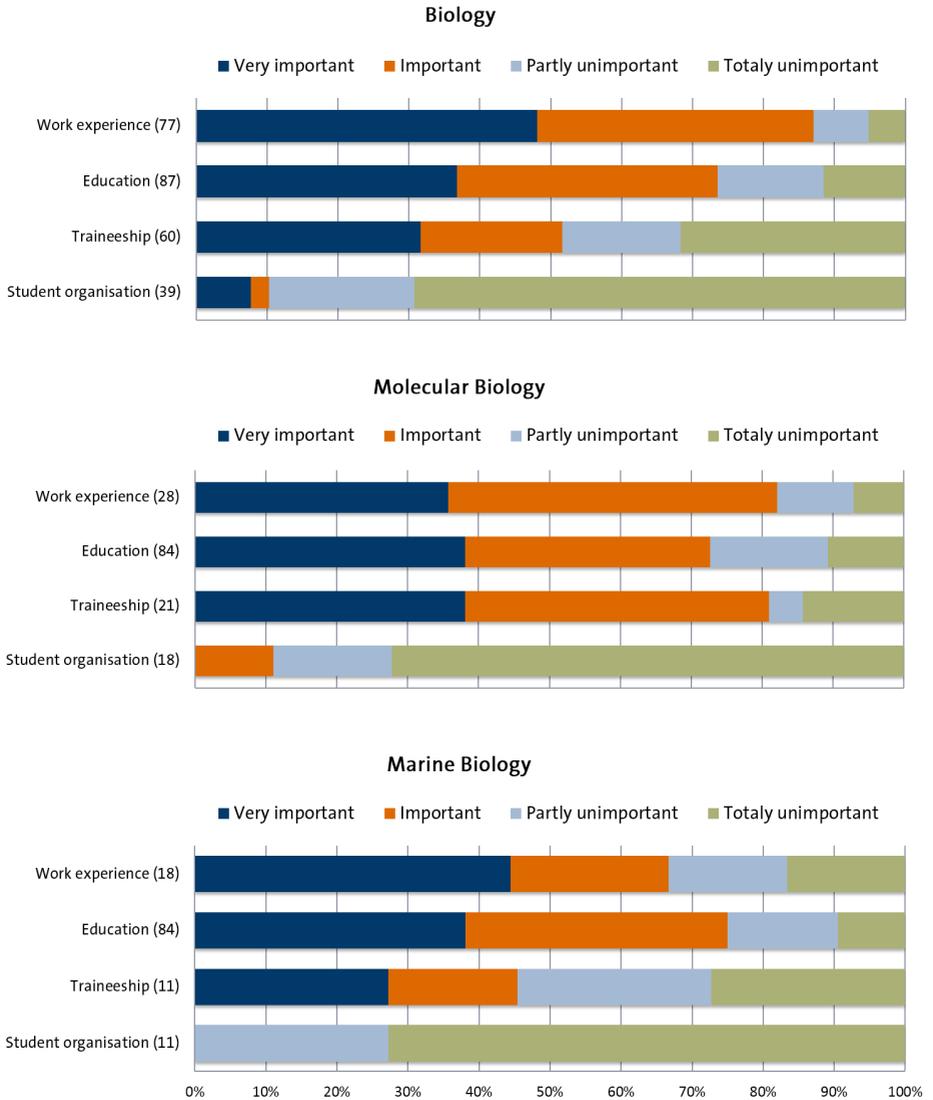


Figure 13. Estimation of the importance of skills used in their current work, obtained through education, work experience, traineeship and participation in student organisations for the three subjects. Figures in parentheses show the number of responses.

Current salary

The median monthly salary was 26 000 - 30 000 Skr for all three biology subjects, PhD-students on average had a slightly lower salary (figure 14).

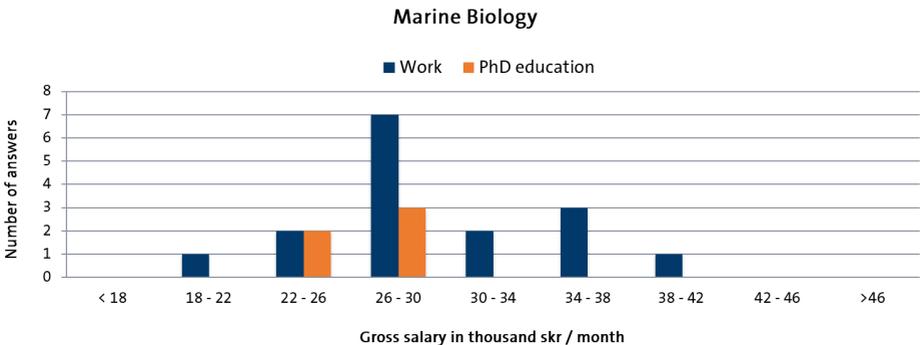
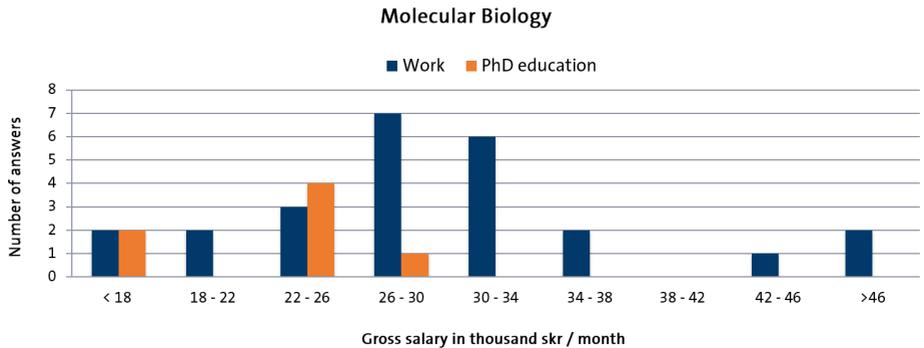
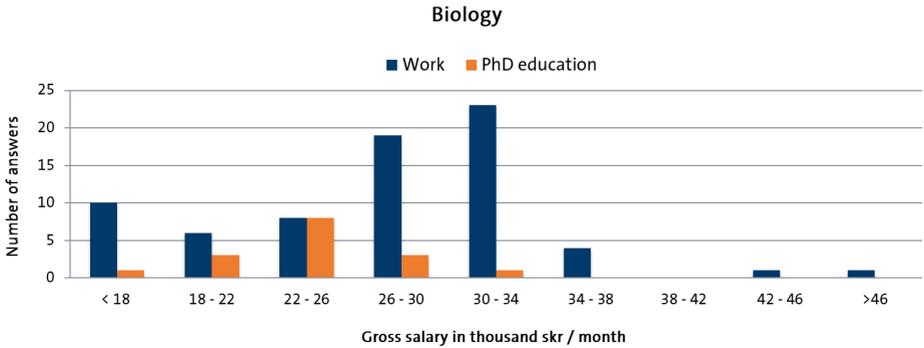


Figure 13. Median monthly salary for the alumni employed or studying for a PhD.

Competing educations

In total 37 % of respondents with work relevant to their education stated that there are other educations relevant to their work. Biologists especially mentioned the BioGeo programme, biomedical analysis and chemistry; marine biologists mentioned limnology and environmental science as competing educations and molecular biologists mentioned the biomedical education at Karolinska institutet.

