THE UNIVERSITY OF BRITISH COLUMBIA

**Science Co-op Programs**

Faculty of Science

# Annual Report 2017/18

science co-op

## Director's Message

The 2017-18 academic year was another year of growth and accomplishment at UBC Science Co-op. Our students completed more than 2,200 placements, of which over 200 were international. To accommodate increasing demand for placements in the computational sciences, we added a coordinator and marketing assistant to our computer science team. We also welcomed the University of Tokyo and KAUST (King Abdullah University of Science and Technology, Saudi Arabia) as our newest partners for international placements.

The team continues to make strides in external relations. We launched a new website, an Instagram channel, and initiated employer and supervisor recognition awards. And congratulations to Jessica Jun for receiving the Science Co-op Student of the Year as well as the Association of Co-operative Education BC/Yukon Student of the Year awards. Well done Jessica!

For the next academic year UBC Science Co-op is excited to be working on initiating several new co-op programs for graduate students in the Faculty of Science. We anticipate presenting this proposal to the UBC Senate this coming fall.

And finally, as he completes his tenure as the Dean of the Faculty of Science, the team and I would like to thank Professor Simon Peacock for his enthusiastic and unwavering support. During his tenure, co-op placements increased from 1,000 to more than 2,200, transforming the program into the largest science co-op in Western Canada.

Javed Iqbal
Director, Faculty of Science Co-operative Education Programs

Table of Contents

1 Program Overview 2 Individual Program 3 Groups Breakdown & Analysis
4 Computational & Mathematical Sciences 5 Engineering Physics
6 Land & Food Systems 7 Life Sciences 8 Natural Sciences 9 Physics & Biophysics


## Annual Placements

In the 2017/2018 fiscal year, UBC Science Co-op placed a total of 2,210 students, an exciting 7% increase compared to last year's total of 2,072 placements (see Fig. 1). To date, there are over 3,400 active employers in the Science Co-op database and over the past year, over 1,350 organizations posted over 5,000 Co-op positions with our program. This report provides program statistics on growth trends, placement location, student demographics, student and employer satisfaction summaries and graduation data.

## Discipline Trends

Of the 26 program disciplines administered by the UBC Science Co-op program, Life Sciences experienced the most growth (17% increase), which made up 36% of the program's total placements. Biopsychology and Combined Major in Science both doubled from 10 to 19 placements, and 24 to 46 placements, respectively. Physical Sciences (Physics & Biophysics) also grew by 11% from 103 to 114 placements. Land & Food Systems and Computational Sciences increased slightly by 4% and 1%, respectively. Natural Sciences and Engineering Physics experienced slight declines. (See Fig.2)

Fig. 1 Annual Placements

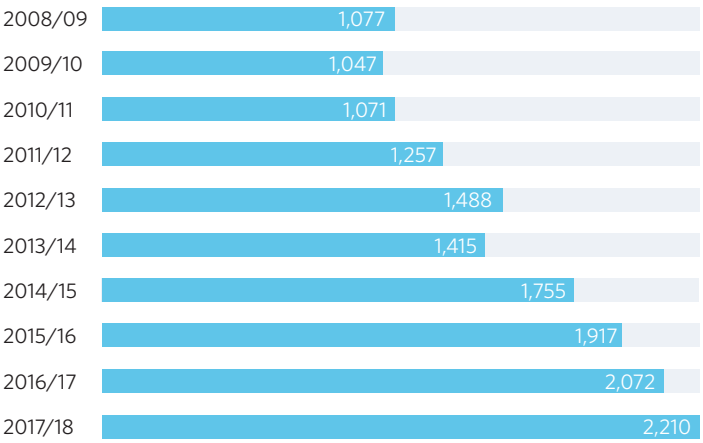



Fig. 2 Discipline Trends

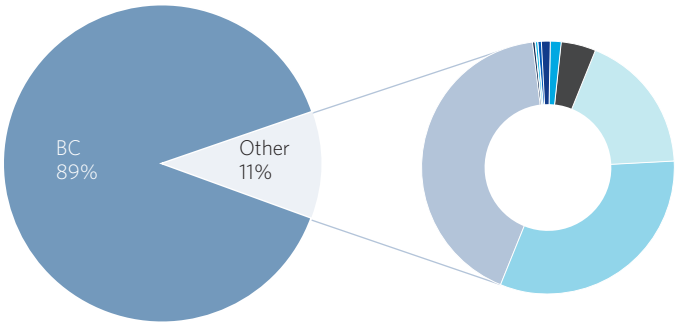
| Discipline | 2015/16 Placements | 2016/17 Placements | 2017/18 Placements | % Change (2017/18 vs 2016/17) |
|---|---|---|---|---|
| Atmospheric Sciences | 3 | 5 | 3 | -40% |
| Bachelor of Computer Science | 150 | 177 | 151 | -15% |
| Biochemistry | 147 | 134 | 141 | 5% |
| Biology | 173 | 168 | 175 | 4% |
| Biophysics | 26 | 36 | 30 | -17% |
| Biotechnology | 39 | 36 | 38 | 6% |
| Biopsychology | 6 | 10 | 19 | 90% |
| Cellular, Anatomical & Physiological Sciences | 24 | 22 | 17 | -23% |
| Chemistry | 80 | 64 | 92 | 44% |
| Combined Major in Science | 27 | 24 | 46 | 92% |
| Cognitive Systems | 27 | 26 | 16 | -38% |
| Computer Science | 530 | 662 | 687 | 4% |
| Engineering Physics | 192 | 198 | 197 | -1% |
| Environmental Sciences | 73 | 58 | 53 | -9% |
| Earth & Ocean Sciences | 17 | 19 | 19 | 0% |
| Geographical Sciences | 17 | 5 | 8 | 60% |
| General Science | 1 | 0 | 0 | 0% |
| Integrated Sciences | 50 | 55 | 89 | 62% |
| Land & Food Systems | 83 | 74 | 77 | 4% |
| Mathematics | 27 | 31 | 53 | 71% |
| Microbiology | 115 | 134 | 145 | 8% |
| Pharmacology | 29 | 28 | 31 | 11% |
| Physics | 54 | 67 | 84 | 25% |
| Statistics | 22 | 28 | 29 | 4% |
| Statistics (Graduate) | 5 | 11 | 10 | -9% |
| **Total** | 1917 | 2072 | 2210 | 7% |

| Group | | | | |
|---|---|---|---|---|
| Computational Sciences & Mathematics | 761 | 935 | 946 | 1% |
| Engineering Physics | 192 | 198 | 197 | -1% |
| Land & Food Systems | 83 | 74 | 77 | 4% |
| Life Sciences | 691 | 675 | 793 | 17% |
| Natural Sciences | 110 | 87 | 83 | -5% |
| Physics and Biophysics | 80 | 103 | 114 | 11% |
| **Total** | 1917 | 2072 | 2210 | 7% |

## Canadian Placements by Province

Canadian employers remain the largest source of our placements, with 91% of total placements occurring within Canada. Most of our 2,004 Canadian placements occurred within BC (89%), followed by Ontario (4%), Alberta (3%), and Quebec (2%). Together, Saskatchewan, Manitoba, New Brunswick, Nova Scotia, PEI, and Yukon contributed slightly less than 1% of total Canadian placements.

| | | | |
|---|---|---|---|
| British Columbia | 1,786 | Manitoba | 3 |
| New Brunswick | 1 | Saskatchewan | 10 |
| PEI | 1 | Quebec | 39 |
| Yukon | 1 | Alberta | 70 |
| Nova Scotia | 2 | Ontario | 91 |




## International Placements

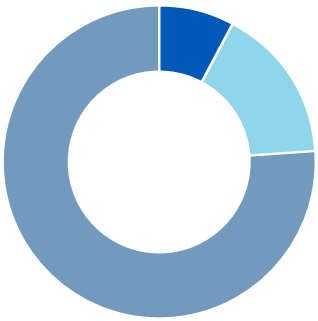
We had 206 international placements in total, down slightly by 3% (from 212) last year, with most placements occurring in the USA (41%). Germany followed with 27%, up slightly from last year (from 23%). Singapore and Japan remain our next highly placed locations at 10% and 9%, respectively. Placements also took place in China, Saudi Arabia, Austria, Denmark, France, Kenya, Norway, Poland, South Africa, the UK, Switzerland, and Taiwan. Key International hiring employers include Bayer, Solvay (formerly Cytec Industries), Google, Tesla Motors, TestAmerica, Laser Zentrum Hannover as well as the University of Wurzburg and the Max Planck Institute in Germany, The Genome Institute of Singapore, and the National University of Singapore.

| | | | |
|---|---|---|---|
| USA | 84 | South Africa | 2 |
| Germany | 55 | UK | 2 |
| Singapore | 21 | Denmark | 1 |
| Japan | 18 | Kenya | 1 |
| China | 10 | Norway | 1 |
| Saudi Arabia | 4 | Poland | 1 |
| Austria | 2 | Switzerland | 1 |
| France | 2 | Taiwan | 1 |

## Student Demographics

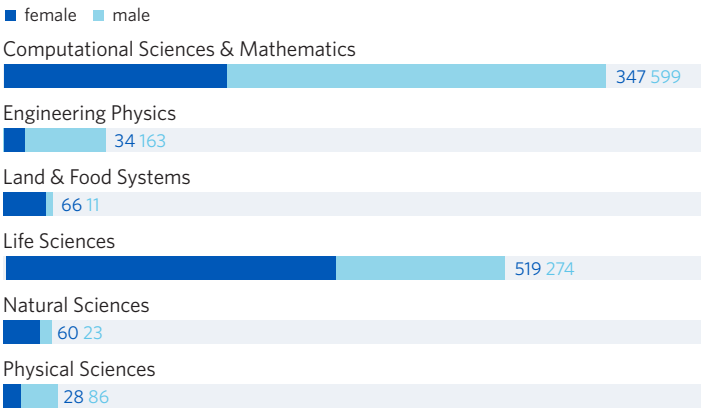
The 2,210 placements were held by 1,465 distinct students, a growth of 5% up from last year's total of 1,394. Of this total, 16% were international students, representing an increase of 30% from last year.

| | |
|---|---|
| Permanent Resident | 114 |
| International Student | 236 |
| Canadian Citizen | 1,115 |



## Gender Distribution

Of the 2,210 placements for 2017/18, 48% were held by female students, and 52% by male students. Atmospheric Sciences, Physics & Astronomy, and Engineering Physics are male dominated (100%, 88%, and 83% respectively), while Cognitive Systems (Cognition & Brain), Land & Food Systems, Cellular, Anatomical & Physiological Sciences, and Statistics (Graduate Program) are female dominated (100%, 86%, 82%, and 80% respectively).



## Employer Evaluation Summary

Co-op employers are required to complete an online evaluation for each student hired. A summary of employers' evaluations of Co-op students, as well as the Co-op placement process, is provided in the following tables.

| Employer Satisfaction with Student's Performance | Collected Responses | % |
|---|---|---|
| Excellent Performance | 1,285 | 61.7% |
| Very Good Performance | 646 | 31% |
| Average | 134 | 6.4% |
| Needs Improvement | 16 | 0.8% |
| Unsatisfactory/Failed Co-op Work Term | 1 | 0% |
| Total | 2,082 | 100% |

| Employer Satisfaction on Program's Placement Process | Collected Responses | % |
|---|---|---|
| Very Satisfied | 1,677 | 82% |
| Somewhat Satisfied | 293 | 12% |
| Neutral | 49 | 2% |
| Somewhat Dissatisfied | 12 | 1% |
| Very Dissatisfied | 18 | 1% |
| Total | 2,198 | 100% |

## Co-op Graduation

For the BSc and BCS graduating class of May 2018, 37% of students have participated in Co-op. 338 Science Co-op graduates have completed all required work terms and will be receiving a Co-op designation on their official degree parchments. The number of Science graduates who have completed at least one Co-op work term is 485, a 12% increase compare to the last year.

| | Number of Science Graduates* | Number of Co-op Graduates with Co-op Designation (completed the required work terms) | Number of Co-op Graduates who completed at least one work term |
|---|---|---|---|
| May 2018 | 1313 | 338 | 485 |
| Nov 2017 | 125 | 23 | 25 |

*excluding EngPhys, LFS, MSc, BCOM, BA

## Student Evaluation Summary

Co-op students are also required to complete an online evaluation for each work term. A summary of students' evaluations of the Co-op placement and an assessment of the usefulness of the Co-op experience in determining a career path is provided in the tables below.

| Student's Overall Satisfaction Level with Placement | Collected Responses | % |
|---|---|---|
| Extremely satisfied | 1,107 | 50.8% |
| Very satisfied | 829 | 38.0% |
| Neutral | 188 | 8.6% |
| Not satisfied | 43 | 2.0% |
| Extremely unsatisfied | 12 | 0.6% |
| Total | 2,179 | 100% |

| Usefulness of Experience Towards Future Career | Collected Responses | % |
|---|---|---|
| Very useful | 1,284 | 59.0% |
| Useful | 606 | 27.8% |
| Neutral | 249 | 11.4% |
| Not very useful | 32 | 1.5% |
| Not useful at all | 5 | 0.2% |
| Total | 2,176 | 100% |

## 3 Year Summary At-A-Glance

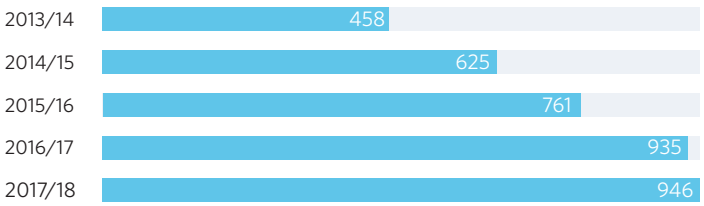
| | 2015/16 | 2016/17 | 2017/18 |
|---|---|---|---|
| Total BSc Graduate (May) | 1151 | 1366 | 1313 |
| Total BSc Co-op Graduates with Co-op Designation (May) | 237 | 304 | 338 |
| Total BSc Co-op Graduates with at least one work term (May) | 307 | 433 | 485 |

# Computational & Mathematical Sciences

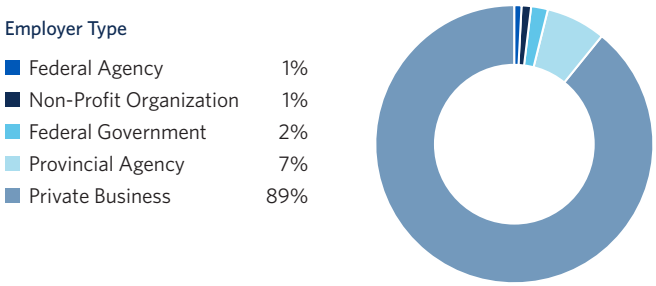
**The following majors fall under Computational & Mathematical Sciences: Cognitive Systems (Computational Intelligence & Design), Computer Science (BA, BCOM, BCS, BSc), Mathematics, Statistics, and Graduate Statistics.**

Computational & Mathematical Sciences contributed the greatest number of placements with a total of 946 for 2017/18, an increase of 1% from 2016/17. The majority of these placements remain in Private Business (89%), while Provincial Agencies provided the second highest area of employment (7%). Most international placements were in the USA (31), with several others in Japan (10) and China (5). Other international locations included Singapore (3), Austria (2), Denmark, Switzerland and Taiwan (1 each). Canadian placements were mostly in BC (816), while most out-of-province placements were in Ontario (64). There were also placements in Alberta (10), Quebec and Nova Scotia (1 each). The gender distribution was 63% Male to 37% Female. The lowest monthly wage was $1844, the highest monthly wage was $10,821 and the average monthly wage was $3,200.

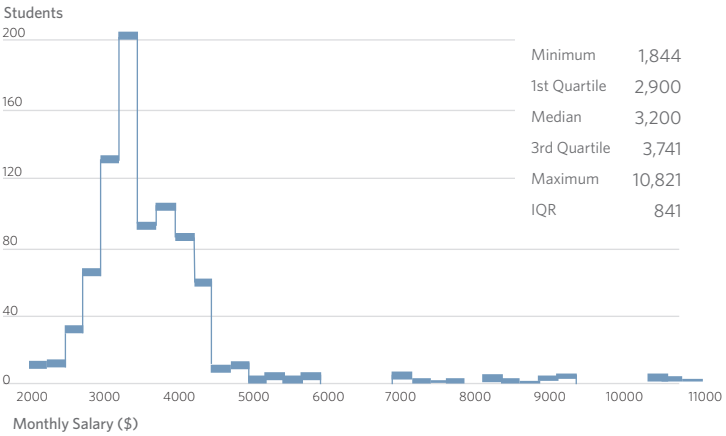
### Total Placements



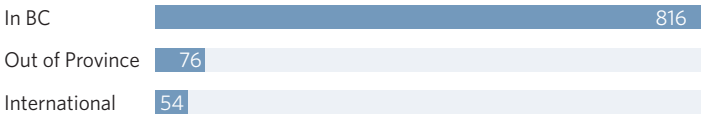

### Employer Type



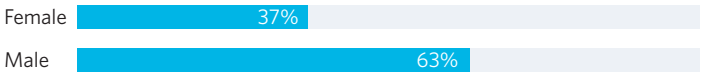

### Salary Distribution of Computational & Mathematical Sciences Students




### Placement Locations




### Gender Distribution

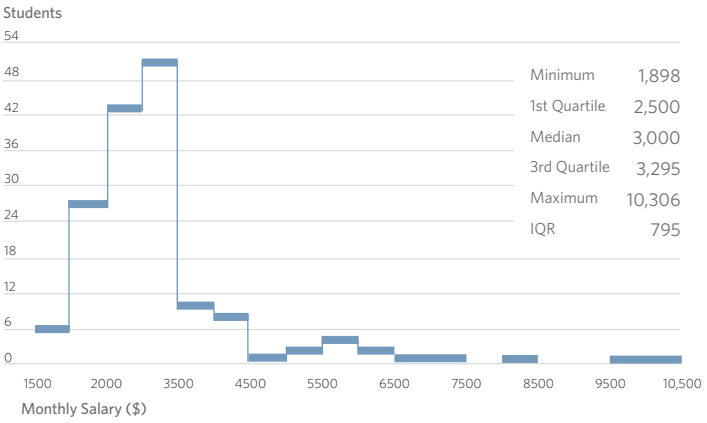



# Engineering Physics

**There were 197 total placements for Engineering Physics students in 2017/18.**

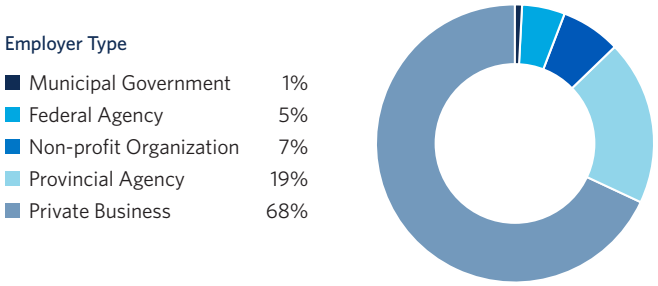
Private Business was again the greatest source of placements (68%), followed by Provincial Agencies (19%), Non-Profit Organizations (7%), and Federal Agencies (5%). International placements increased by 54% from last year, with most being in Germany (48%) and the USA (35%). Additional placements took place in Japan (3), Kenya, Norway, Singapore, and the UK (1 each). Canadian placements were mostly in BC (144), while out-of-province placements occurred in Ontario (5), Alberta (5), and Quebec (3). Gender distribution was 83% Male to 17% Female. The lowest monthly wage was $1898, the highest monthly wage was $10,306 and the average monthly wage was $3,000.

### Combined Salary Distribution of Engineering Physics students

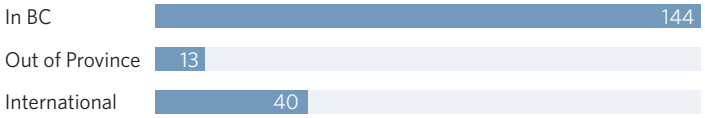



### Total Placements

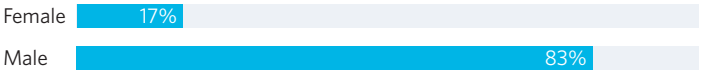

### Employer Type

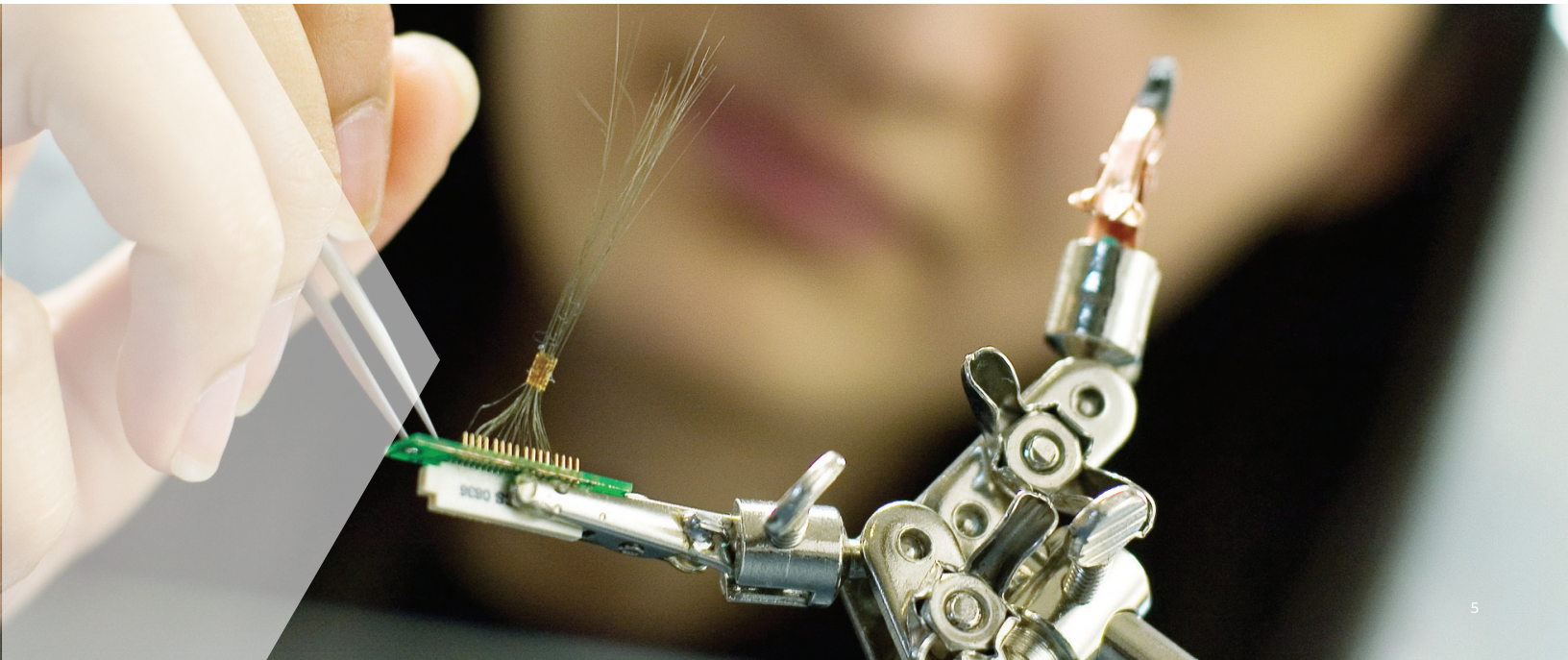



### Placement Locations




### Gender Distribution



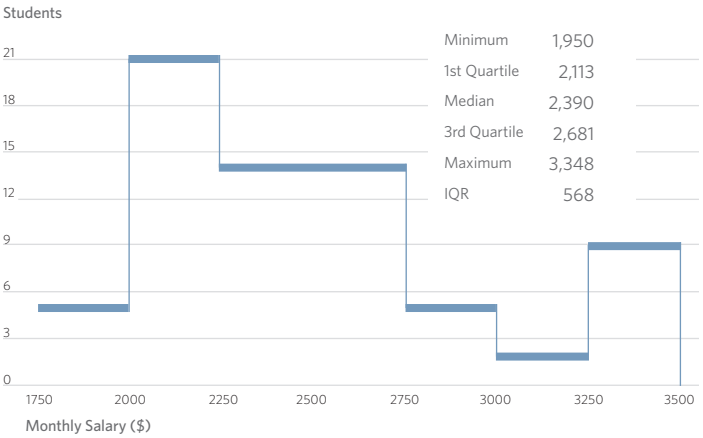



# Land and Food Systems

**There were 77 total placements for Land and Food Systems students in 2017/18, an increase of 4% from last year.**

Most were in Private Business (69%), and Provincial Agencies (20%), followed by Federal Government (5%) and Non-Profit Organizations (5%). All placements took place in Canada, mostly in BC (66), while out-of-province placements took place in Alberta (6), Ontario (3), and Quebec (2). Gender distribution was 86% Female to 14% Male. The lowest monthly wage was $1950, the highest monthly wage was $3,348 and the average monthly wage was $2,390.

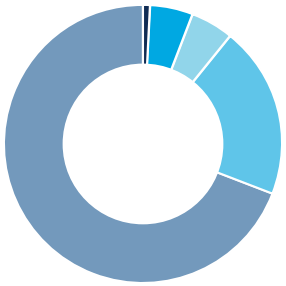
### Salary Distribution of Land and Food Systems Students



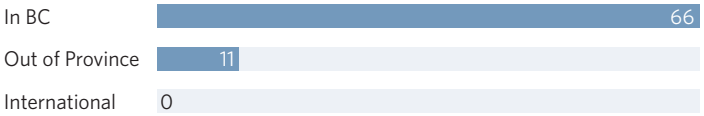

### Total Placements


### Employer Type

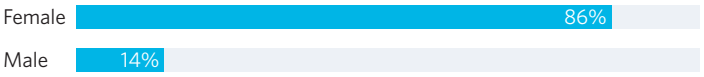
| | |
|---|---|
| Provincial Government | 1% |
| Federal Government | 5% |
| Non-Profit Organization | 5% |
| Provincial Agency | 20% |
| Private Business | 69% |



### Placement Locations




### Gender Distribution



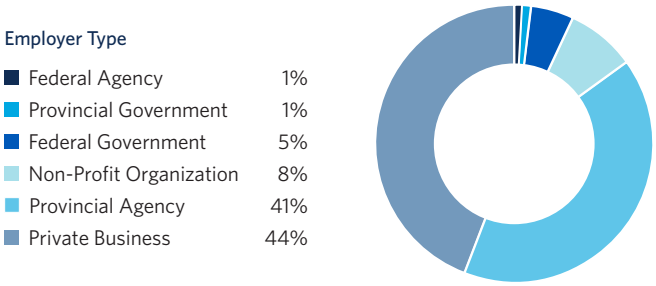

# Life Sciences

**The majors within the Life Sciences Co-op program include: Biochemistry, Biology, Biotechnology, Biopsychology, Cellular, Anatomical & Physiological Sciences (CAPS), Chemistry, Combined Major in Science, Cognitive Systems (Cognition & Brain Stream), General Science, Integrated Sciences, Microbiology, and Pharmacology.**

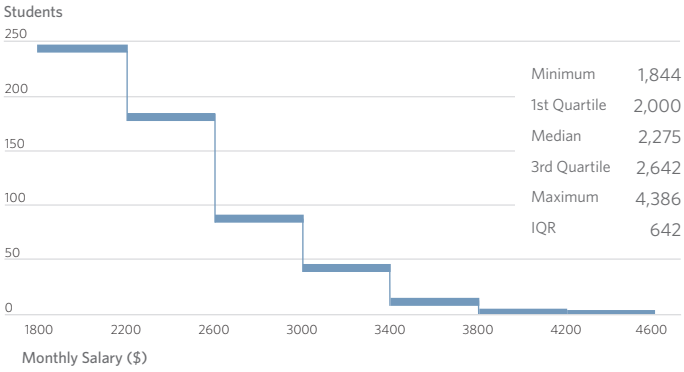
Life Sciences placements increased by 17% in 2017/18, with a total of 793. Most placements occurred in Private Business (44%) and Provincial Agencies (41%), followed by Non-Profit Organizations (8%), and Federal Government (5%). Life Sciences again had the highest number of international placements (70), with the majority being in the USA (36), Singapore (15), and Germany (10). There were also placements in China (5), Japan, and Saudi Arabia (2 each). Life Sciences had the highest distribution of Canadian placements, most of which were in BC (643), but also Alberta (30), Quebec (29), Ontario (10), Saskatchewan (6), Manitoba (2), and Nova Scotia, PEI and Yukon (1 each). Gender distribution was 65% Female to 35% Male. The lowest monthly wage was $1844, the highest monthly wage was $4,386 and the average monthly wage was $2,275.

### Total Placements

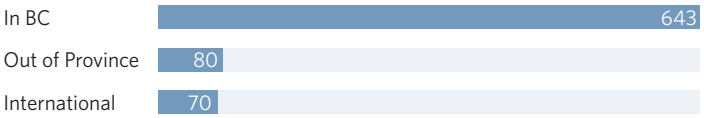

### Employer Type



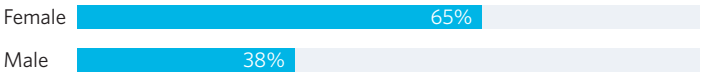

### Salary Distribution of Life Sciences Students




### Placement Locations




### Gender Distribution

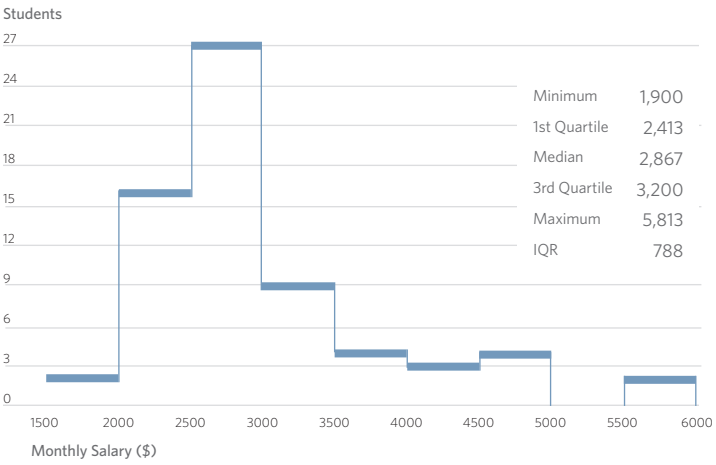



# Natural Sciences

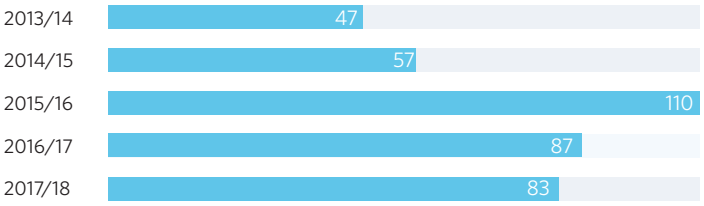
**Natural Sciences Co-op is comprised of Atmospheric Science, Environmental Sciences, Earth & Ocean Sciences, and Geographical Sciences.**

There were 83 placements for Natural Sciences students in 2017/18. The majority of these placements remain in Private Business (49%) and Federal Government (25%), followed by Provincial Agencies (16%), and Federal Agencies (4%). There were 6 international placements, 2 each in the USA, South Africa, and Germany. While the majority of Canadian placements took place within BC (50), the Natural Sciences contributed the greatest proportion of out-of-province placements, with 32% of total placements in this group occurring outside of BC. Most of out-of-province placements in Alberta (17). Other Canadian placements took place in Saskatchewan (4), Quebec (3), and Manitoba, New Brunswick and Ontario (1 each). Gender distribution was 72% Female to 28% Male. The lowest monthly wage was $1900, the highest monthly wage was $5,813 and the average monthly wage was $2,867.

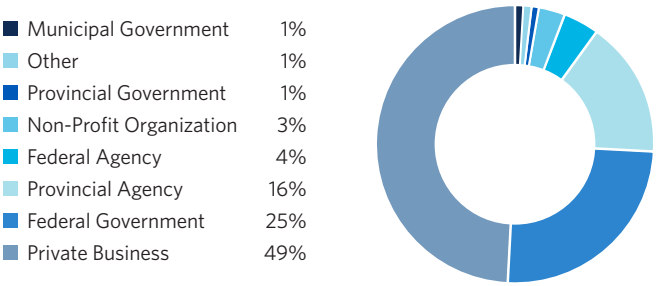
### Salary Distribution of Natural Sciences Students



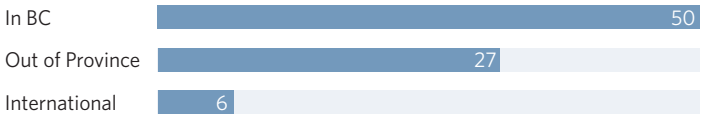

### Total Placements



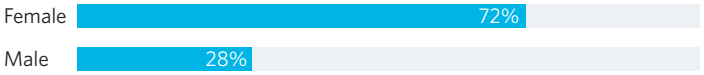

### Employer Type




### Placement Locations




### Gender Distribution

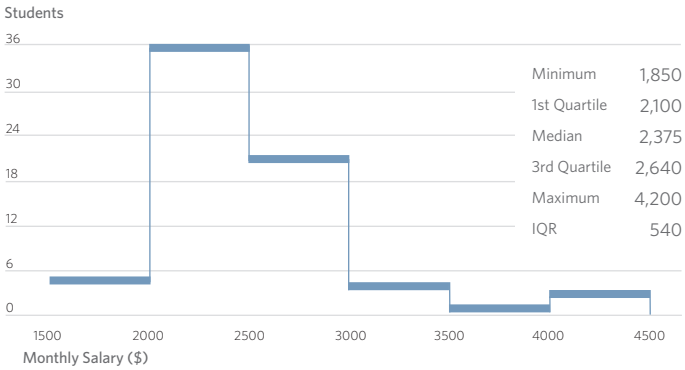



# Physics & Biophysics

**Physics and Biophysics placements increased by 11% in 2017/18, with a total of 114.**

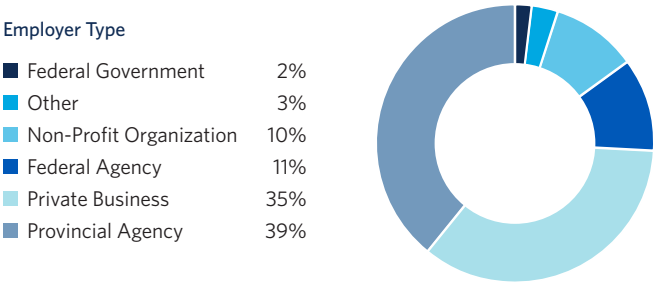
Most of these placements were in Provincial Agencies (39%), Private Business (35%), Federal Agencies (11%), and Non-Profit Organizations (10%). The Physical Sciences programs provided the greatest proportion of placements internationally, with 32% of total placements taking place outside of Canada. Most international placements took place in Germany (24), followed by Japan (3), France, Saudi Arabia, and Singapore (2 each), and Poland, the UK and USA (1 each). Canadian placements were mostly in BC (67), while Ontario provided the most out-of-province placements (8), followed by Alberta (2), and Quebec (1). Gender distribution was 75% Male to 25% Female. The lowest monthly wage was $1850, the highest monthly wage was $4,200 and the average monthly wage was $2,375.

### Combined Salary Distribution of Physics and Biophysics students

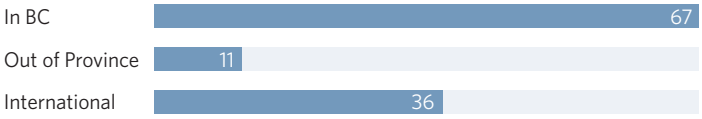



### Total Placements

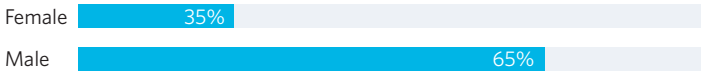

### Employer Type




### Placement Locations




### Gender Distribution




Atmospheric Science

Biochemistry & Molecular Biology

Biology

Biophysics

Biopsychology

Biotechnology

Cellular, Anatomical & Physiological Sciences

Chemistry

Cognitive Systems

Combined Major in Science/General Sciences

Computer Science/Bachelor of Computer Science

Earth & Ocean Sciences

Engineering Physics (BASc)

Environmental Sciences

Geographical Sciences

Integrated Sciences

Land & Food Systems

Mathematics

Mathematical Sciences

Microbiology & Immunology

Pharmacology

Physics & Astronomy

Statistics (undergraduate & graduate)

UBC Science Co-op Programs
Chem/Phys 170-6221 University Blvd
Vancouver, BC
Canada V6T 1Z1
604.822.9677
science.coop@ubc.ca

**www.sciencecoop.ubc.ca**

UBC Science Co-op