THE UNIVERSITY OF BRITISH COLUMBIA

Faculty of Science

SKYLIGHT Annual Report 2017/2018

SKYLIGHT: The Science Centre for Learning and Teaching

From left to right:
Front row: Rachel Petrynko, Gülnur Birol, Alice Campbell, Caitlin Donnelly, Melissa Lee, Sarah Bean Sherman, Sara Harris, Electra Eleftheriadou
Back row: Warren Code, Erica Jeffery, Erika Borys, Christine Goedhart, Kathleen (Katie) Foote, Matthew (Matt) Coles, Eric Jandciu, Jeanette Leeuwner
Absent from team photo: Manuel Dias, Noureddine Elouazizi, Ashley Welsh

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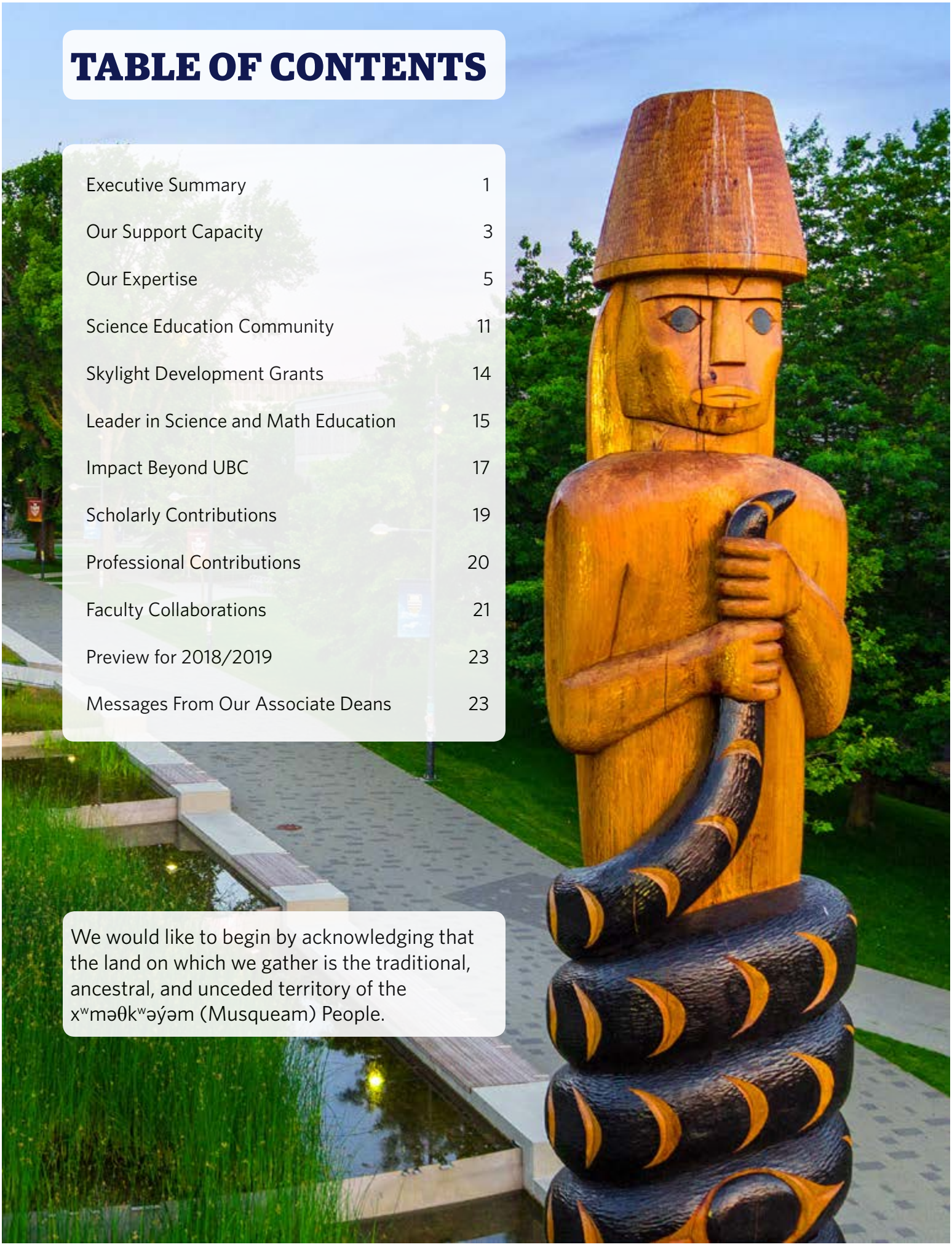


We would like to begin by acknowledging that the land on which we gather is the traditional, ancestral, and unceded territory of the xʷməθkʷəy̓əm (Musqueam) People.

EXECUTIVE SUMMARY

We are delighted to present Skylight's first annual report, which highlights some of our key accomplishments between May 2017 and April 2018 and describes our staff expansion through July 2018. For a broader overview and history of Skylight, we have prepared a prospectus document, Advancing the Science Behind Education *(2019).*

The hiring of Science Education Specialists (SESs) in seven Science departments and the allocation of new teaching and learning funds for all nine Science departments marked a key milestone in Skylight's history. *This expansion, thanks to the generous support of the Science Dean's Office, will ensure targeted and sustainable support for assisting individual faculty and Science departments with achieving their teaching and learning goals.*

Last year featured the campus-wide ***transition to Canvas****, UBC's new learning management system. We are grateful for the support of Science heads and directors, and for the dedication of Science faculty and department-based learning technology and IT support staff, in making this transition as smooth as possible.*

We continued offering consultation services, and we collaborated with faculty and staff on scholarly work and on the implementation of strategic teaching and learning enhancement projects. ***We facilitated and offered networking and professional development opportunities for faculty and our staff,*** *with workshops on Canvas, Writing Across the Curriculum+, and Mathematics TA/teaching postdoc training. Our Skylight Supper Series and Open House events once again captured the enthusiasm and interest of our community in teaching and learning.*

We entered the third year in our role as a ***mentor institution*** *in the National Science Foundation-sponsored TRESTLE project. We continued offering TRESTLE-sponsored networking and idea-sharing opportunities to Science faculty and Skylight staff.*

The Carl Wieman Science Education Initiative (CWSEI) concluded its final year of major activity across all Faculty of Science departments in 2017. A small number of departmental activities, as well as a continuation of wrap-up report and publication efforts, will extend into 2019. ***The CWSEI has so far involved hundreds of faculty, transformed over 180 courses in Science, and provided the basis for both Skylight's SES expansion and the new paired teaching initiative (Teaching Start-Up Program in Science - Paired Teaching).*** *It continues to both inspire and coach other institutions in their adoption of research-informed teaching and learning practices through scholarly work and networks.*

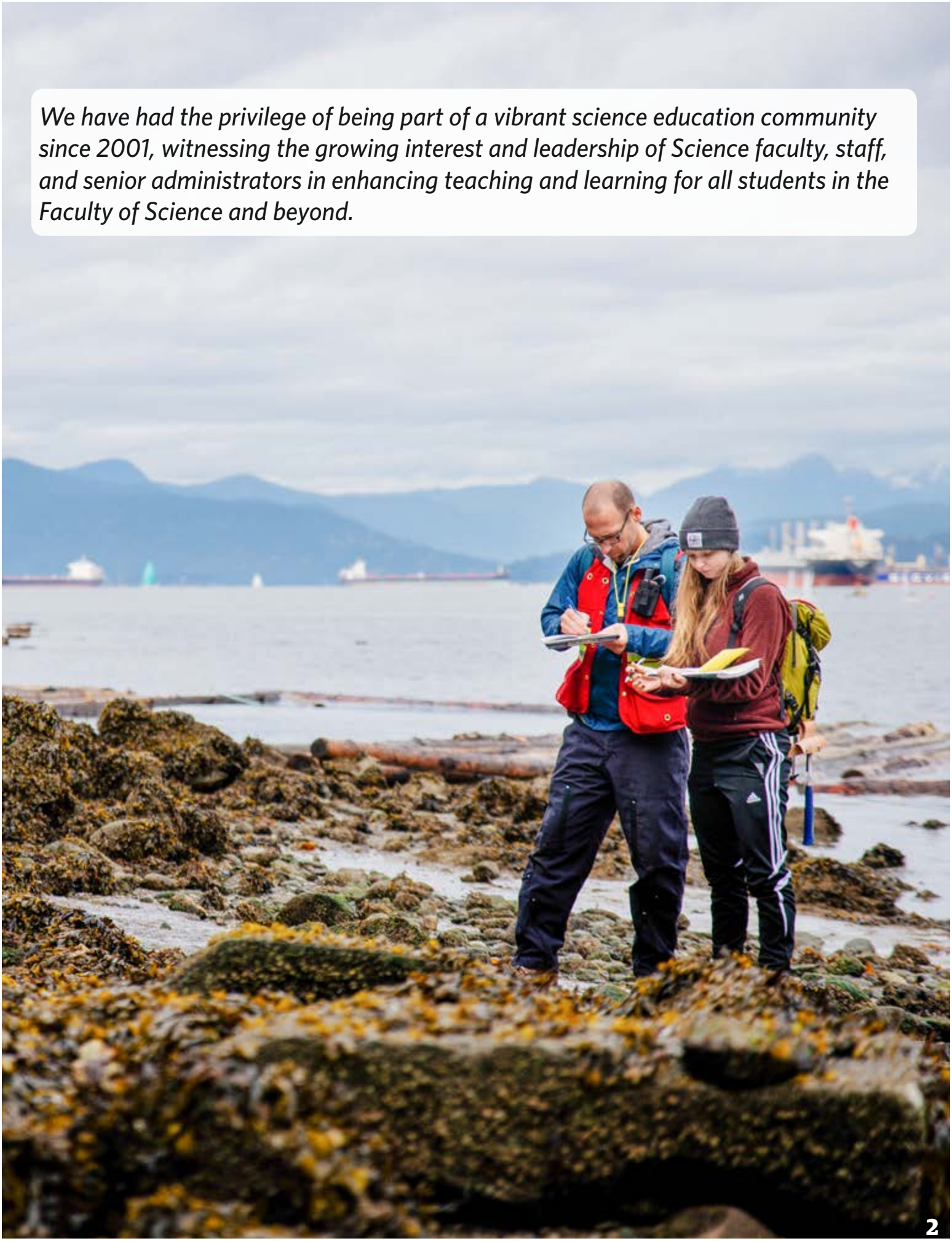
We are excited about what the future holds for the teaching and learning community at UBC with Dr. Simon Bates's appointment in the newly-created role of Associate-Provost, Teaching and Learning. We recently formed a new partnership with the Student Diversity Initiative (SDI) at UBC to focus on inclusivity in science and mathematics education, and we are working on many other exciting projects and initiatives.

We would like to end by thanking Dr. Simon Peacock, our former Dean of Science, and Dr. Ian Cavers, founder of Skylight and our former Associate Dean, Academic, for their extraordinary leadership in teaching and learning. We would also like to welcome our new Dean of Science, Dr. Meigan Aronson and our Associate Dean, Academic, Dr. Sara Harris. We look forward to working with them and Science faculty and staff to take science and mathematics education to new heights.

Dr. Gülnur Birol, Director

Dr. Warren Code, Associate Director

We have had the privilege of being part of a vibrant science education community since 2001, witnessing the growing interest and leadership of Science faculty, staff, and senior administrators in enhancing teaching and learning for all students in the Faculty of Science and beyond.



WE INCREASED OUR SUPPORT CAPACITY

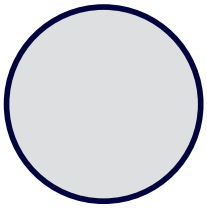
Skylight supports Science departments' visions and needs for teaching and learning, creates opportunities for educational leadership for faculty, and brings the science education community closer through well-articulated professional development programs, networking opportunities, and events.

Working closely with department heads, Skylight Faculty Advisory Council members, and administrative staff, we welcomed seven embedded SESs to our team:

Christine Goedhart
Botany (BOTA)

Jeanette Leeuwner
Chemistry (CHEM)

Alice Campbell
Computer Science (CS)



Sarah Bean Sherman
Earth, Ocean and Atmostpheric Sciences (EOAS)

Matthew (Matt) Coles
Mathematics (MATH)

Kathleen (Katie) Foote
Physics and Astronomy (PHAS)

Erica Jeffery
Zoology (ZOOL)

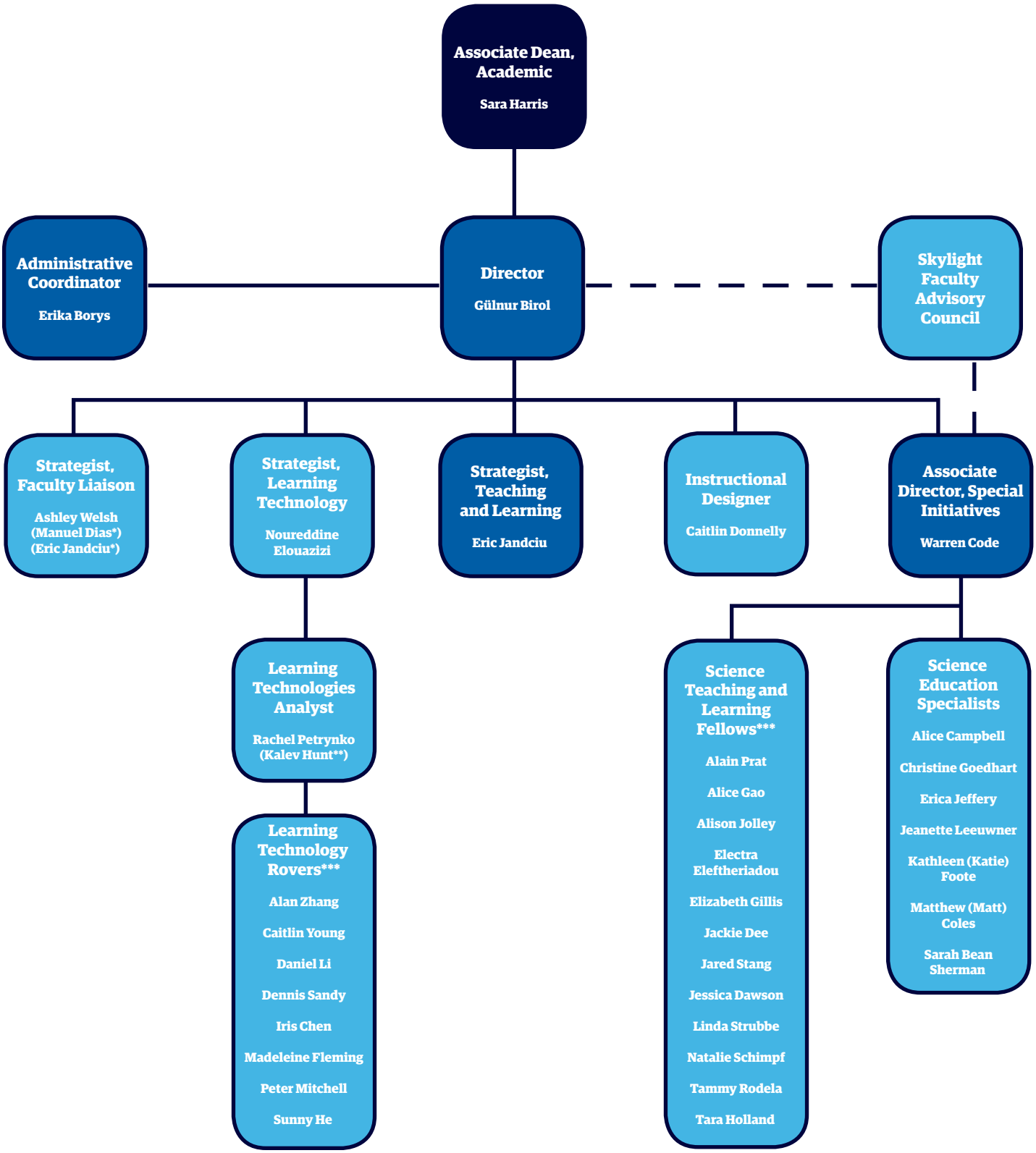
We also have Skylight staff embedded in CTLT, including the Faculty Liaison, Learning Technology Strategist, Learning Technologies Analyst, and Learning Technology Rover roles. These strategic arrangements continue to enable the alignment of UBC resources with Science faculty's needs in a timely manner.

Our expansion has provided us with more targeted support than ever for Science departments and their faculty, and gives us more capacity for promoting the sustainment of support for faculty in the ongoing integration of evidence-informed pedagogies in their classrooms.

"Starting with the curriculum reform activities with the support of our first Skylight embedded expert in Biology over 13 years ago, the work of teaching and learning fellows (Carl Wieman STLFs and TLFs) has been incredibly important in the design, deployment, and analysis of our teaching and learning strategies and will continue to be so with the new Science Education Specialists (SESs). Not only will they support faculty at the course level to improve teaching practice and student engagement and learning, they will also be instrumental in the assessment and development of program-level learning outcomes and competencies and ultimately in the integration of our curriculum. In addition, SESs will provide guidance in the form of such activities as workshops, Reading Group, and coordination of teaching and learning activities such as guest speakers and teaching retreats. Skylight has been indispensable to the progress we have made and our future curriculum restructure objectives by: helping to develop and maintain a community of practice around teaching and learning; providing intensive training and support to the STLFs and TLFs (and now SESs) that has allowed them to be effective agents of change in our undergraduate teaching program; and facilitating the development of grant proposals to support teaching initiatives within the department. The Biology Program's commitment to continued curriculum reform would not be possible without the support of Skylight and the Science Education Specialists."

Shona Ellis, Professor of Teaching, Botany, and Associate Head, Biology

ORGANIZATIONAL CHART



*Leave replacement
**Until December 2017
***Contract dates vary

Central Skylight Staff

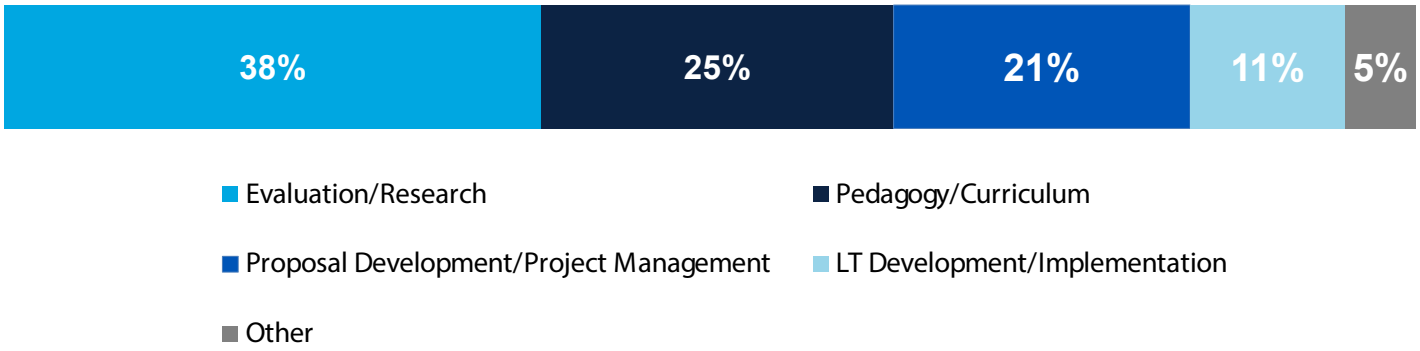
Embedded Skylight Staff

OUR EXPERTISE COVERS A FULL RANGE OF SUPPORT AND SERVICES

CONSULTATIONS

We worked with **244 unique individuals** in the past year, 80% of whom were either tenure track or contract faculty in Science. This is roughly **30% of all Science faculty.**

We consulted with Science faculty and staff on **90 unique topics** (Canvas consultations, excluded here, are reported on Page 8). These consultations centered on evaluation and research efforts, pedagogy or curriculum in a specific course or a program, proposal development and project management, and learning technology-mediated pedagogies for specific courses.



Sample Consultations

Evaluation/Research
Caitlin Donnelly, working with Melissa Lee and Bruce Dunham, conducted focus groups with students to gain a deeper understanding of the use of educational resources that were developed by the Flexible Learning in Introductory Statistics team.

Pedagogy/Curriculum
Matthew Coles supported Samantha Dahlberg and Andreas Buttenschoen in their implementation of clickers in MATH 103.

Proposal Development/Project Management
Kathleen Foote provided project management support to Chris Waltham and Colin Gay for curriculum mapping activities in Physics and Astronomy.

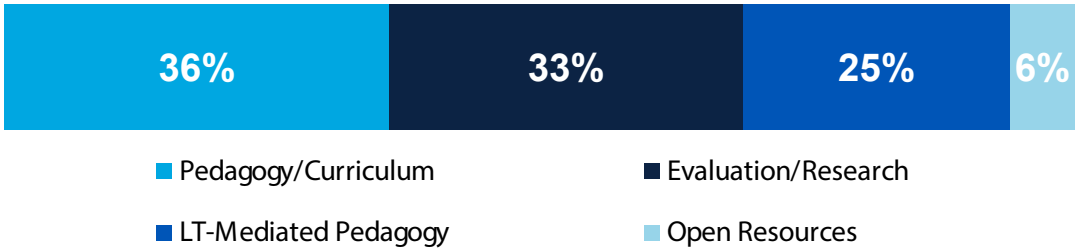
LT Development/Implementation
The Skylight learning technology team provided support and guidance to numerous learning technology innovation efforts by faculty, including but not limited to: Kayli Johnson's concept of in-video interactivity and analytics for Chemistry education, Nancy Heckman's concept of a platform for shareable Statistics education resources, Russ Algar's model for scenario-based pedagogies for science education, and Elyse Yeager's concept of growth mindset in first-year Mathematics education.

Through our consultations, collaborations, and engagement with faculty on projects, the Skylight team impacted **more than 60 undergraduate Science courses** spanning all years and across all Science programs, accounting for **30% of all Science course enrollments** in the 2017/2018 academic year.

Department	Number of Courses in 2017/2018	Student Enrollments in 2017/2018
BOTA/ZOOL (BIOL)	4	5,400
CHEM	5	3,700
CS	12	5,100
EOAS	23	3,250
MATH	15	12,350
M&I	1	450
PHAS	1	95
STATS	1	110

PROJECT IMPLEMENTATION SUPPORT

Skylight team members collaborated with Science faculty and staff on **49 different projects** with varying degrees of complexity and scale, with the goal of improving student learning and experience. These projects focused on improving pedagogy or curriculum in a specific course or a program, developing learning technology-mediated pedagogies for specific courses, supporting evaluation and research efforts, and contributing to open educational resources potentially reaching science educators within and beyond UBC.



Sample Projects

Pedagogy/Curriculum

Sarah Bean Sherman supported Siobhan Whadcoat in developing three online, stand-alone modules for introductory geographic information system skills for use in EOSC 240, EOSC 330, EOSC 434, and EOSC 534. She is also a consultant on the project.

Ashley Welsh, consulting with Science departments and units across UBC Vancouver, developed a framework for BSc Degree Outcomes as a guide to facilitate conversations and actions in Science departments. This framework will support efforts in Science to move further towards using learning outcomes as a primary organizing principle for program structure and completion.

Erica Jeffery collaborated with Shona Ellis to create the foundation for the Biology Curriculum Alignment project.

Evaluation/Research

Alice Campbell collected and analyzed data on the student experience in first year Computer Science courses to support the development of new courses for non-majors, working with Rachel Pottinger, Ian Mitchell, Meghan Allen, Cinda Heeren, and Mike Gelbart.

Eric Jandciu led program evaluation efforts for the Master of Data Science program, working with Milad Maymay.

Erika Borys provided design and editorial support for multiple projects, including scholarly work and this report.

LT-Mediated Pedagogy

Rachel Petrynko supported Liane Chen and Robin Young in the development of course templates for Canvas to improve usability and to provide a seamless experience for Biology students.

Open Resources

Warren Code began working on a new, sustainable platform for the CWSEI to archive course materials produced in the University of Colorado Boulder and UBC initiatives.

"Skylight helped us develop a comprehensive strategy to assess and evaluate the success of the new Master of Data Science program. They were able to advise us on big picture issues such as the goals and objectives of our strategy as well as details such as which tools to use and how to phrase the survey questions. I would definitely recommend working with the staff at Skylight if you have any questions about setting up and implementing an assessment strategy for your program."

Milad Maymay, Director, Program Operations & Student Management, Master of Data Science Program

LEARNING TECHNOLOGIES ECOSYSTEM SUPPORT

Skylight, in partnership with CTLT and the department-based IT/LT groups in Science, provided support and expertise to our faculty during the 2017/2018 transition to Canvas, the newly-adopted learning management system.

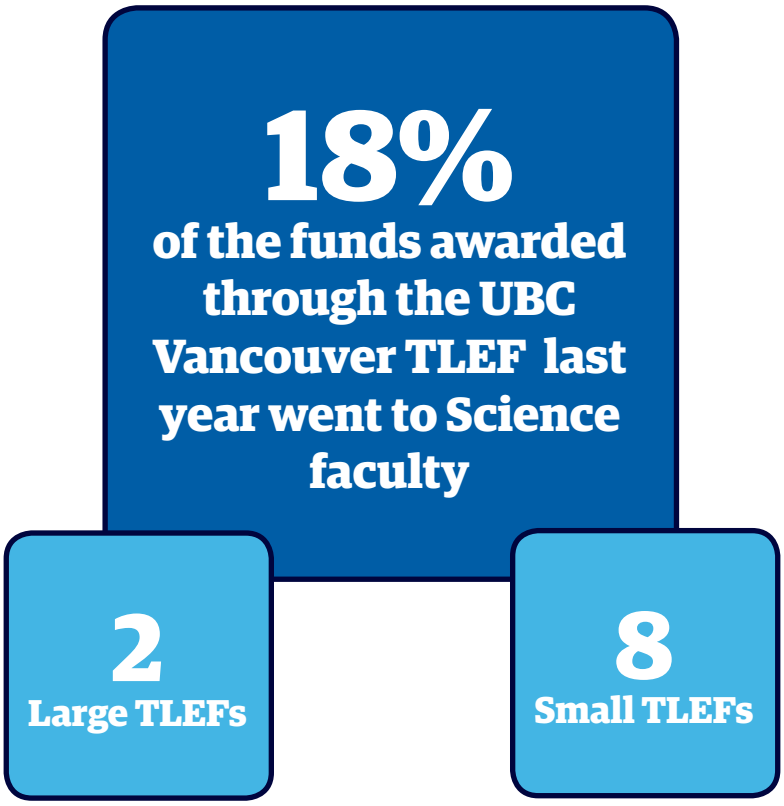
8,353	**Learning technology support requests serviced (including Canvas)**
1,422	**Course sections transitioned to Canvas (over 70% of Science sections)**
81	**Learning technologies supported**
19	**Learning technology ecosystem innovation projects undertaken with faculty**

"The most notable and impactful support has been for our large TLEF project, Flexible Learning in Introductory Statistics, a cross-faculty project to develop high-quality resources for introductory statistics instruction. Skylight educational technology personnel have worked with us to develop StatSpace, a repository for the project's developed resources."

Nancy Heckman, Professor and Department Head (2008-2018), Statistics

TLEF PROJECT SUPPORT

We continued providing project development and implementation support to faculty, in partnership with CTLT. We connected faculty with resources to facilitate the adoption of best practices and to build capacity for change within the Faculty of Science. Science faculty submitted proposals aimed at improving student skill development, implementing new learning technologies, creating open resources, and developing tools and assessments to enrich student learning.



Alchemy is a learning technology tool that enables scenario-based pedagogies for STEM education. Its creation was initially funded through the Skylight Development Grants, and it received further funding through the TLEF to build the software into a critical thinking and decision making tool for learning. In its third year, Alchemy continues to find more applications in Chemistry courses.

The Skylight and CTLT learning technology teams, in close partnership with Dr. Russ Algar (Chemistry faculty member and PI), designed the architecture of the Alchemy software to include a content management system to manage scenarios, a learning record system to mine learning events, and an engine to create and display learning scenarios.

"Skylight has been essential in translating our big idea from paper to practice. The initial prototype for Alchemy—an online platform for engaging students in the active learning of decision making and critical thinking skills—was developed, in part, with support from Skylight. Further support from Skylight is enabling us to quickly grow the impact of Alchemy in the Faculty of Science at UBC. Indeed, we get double the impact from our Skylight support by hiring UBC Science students to help develop resources for their peers, enhancing both the academic and professional development of students."

Russ Algar, Associate Professor, Chemistry, project funded 2013

"UBC Skylight has made tremendous contributions to the development of the Academic Scholars Program, part of a TLEF research project looking at the relationship between student wellness and academic success held by UBC Wellness. Gülnur Birol, the director of UBC Skylight, was an integral part of the team every step of the way. She not only helped us shape the project but also made me personally aware of numerous resources available for students and supported my personal growth as an undergraduate researcher. She was always happy to review my abstracts and presentations, and chat with me about my goals in science and medicine. I was truly lucky to have had the support of UBC Skylight in both my research and my university experience."

Daisy Li, Undergraduate Student, Microbiology and Immunology

WE FOSTER A VIBRANT COMMUNITY IN SCIENCE EDUCATION

Skylight hosted and facilitated a wide range of events, including professional development and networking opportunities for faculty and staff, that were attended by **over 925 guests**. Last year's events and workshops focused on how learning works, sharing best practices in active learning pedagogies, discipline-based education research, science writing and communication, and Canvas. We were delighted to host our **100th Supper Series event** in February 2018.

Our annual Skylight Open House on science education in April 2018 featured **34 posters** showcasing the excellent work and activities carried out by the Science teaching and learning community last year. Another highlight of this event was the Science student panel on program outcomes. The panel offered a unique way for our audience to hear about students' undergraduate experiences firsthand. **Five wonderful undergraduate students** representing different departments provided invaluable insights into their experiences and sense of belonging in their programs, and how their experiences contributed to their plans after graduation.

925+ Attendees

1 Skylight Open House

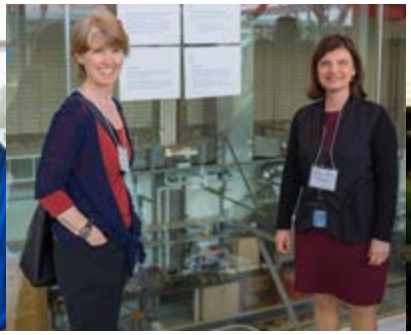
6 Skylight Supper Series Events

14 Workshops

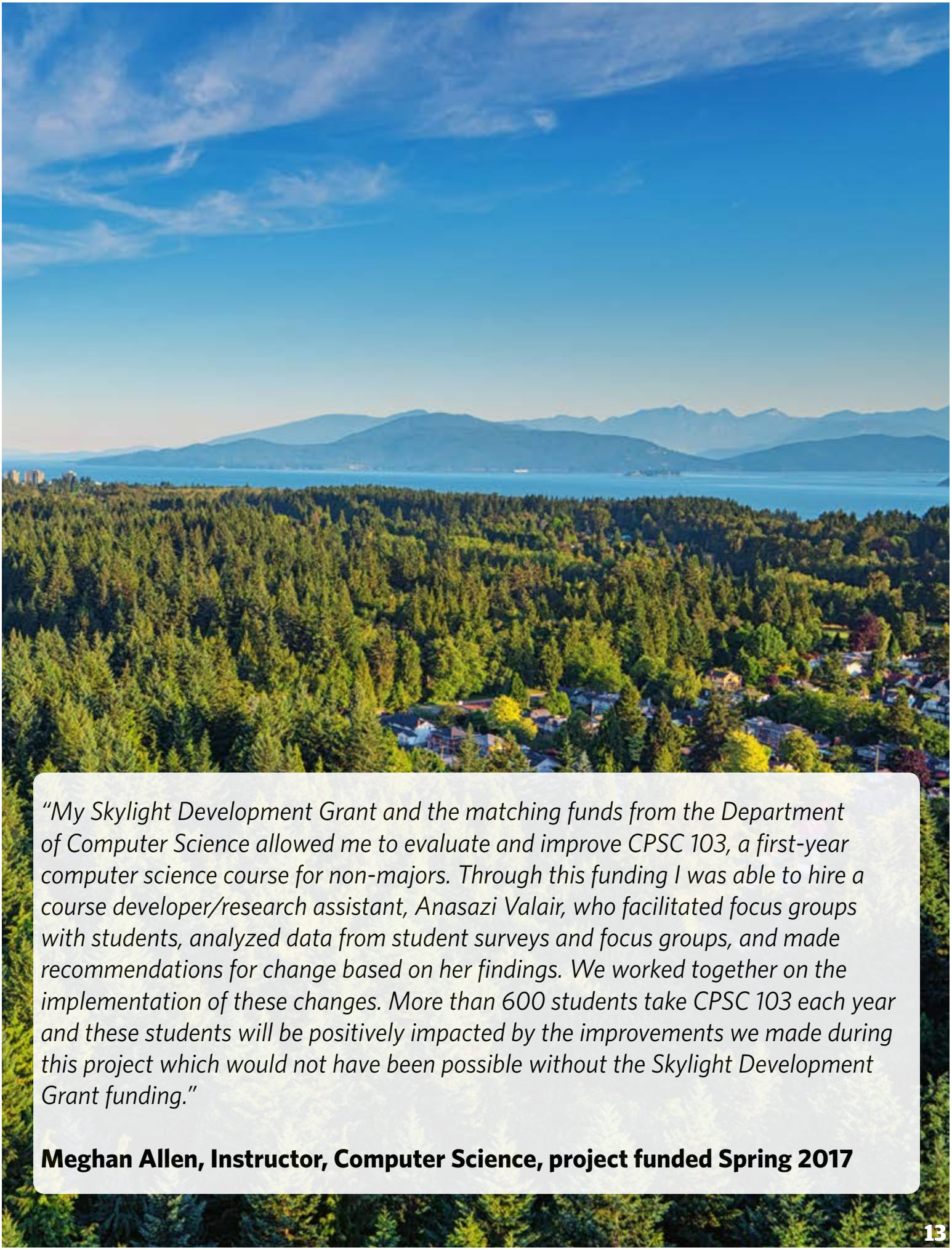
7 Reading Group Sessions

14 Teaching & Learning Development Sessions

16 Science Community of Practice Sessions



We had the privilege of hosting David Oliver (M&I), Bridgette Clarkston (BOTA), Pamela Kalas (BOTA/ZOOL), Meghan Allen (CS), Alice Campbell (CS), Linda Strubbe (PHAS), Deborah Good (PHAS), Joseph Topornycky (CTLT) on behalf of Lacey Samuels (BOTA), and Francis Jones (EOAS) as our speakers at the 2017/2018 Skylight Supper Series on science education events.



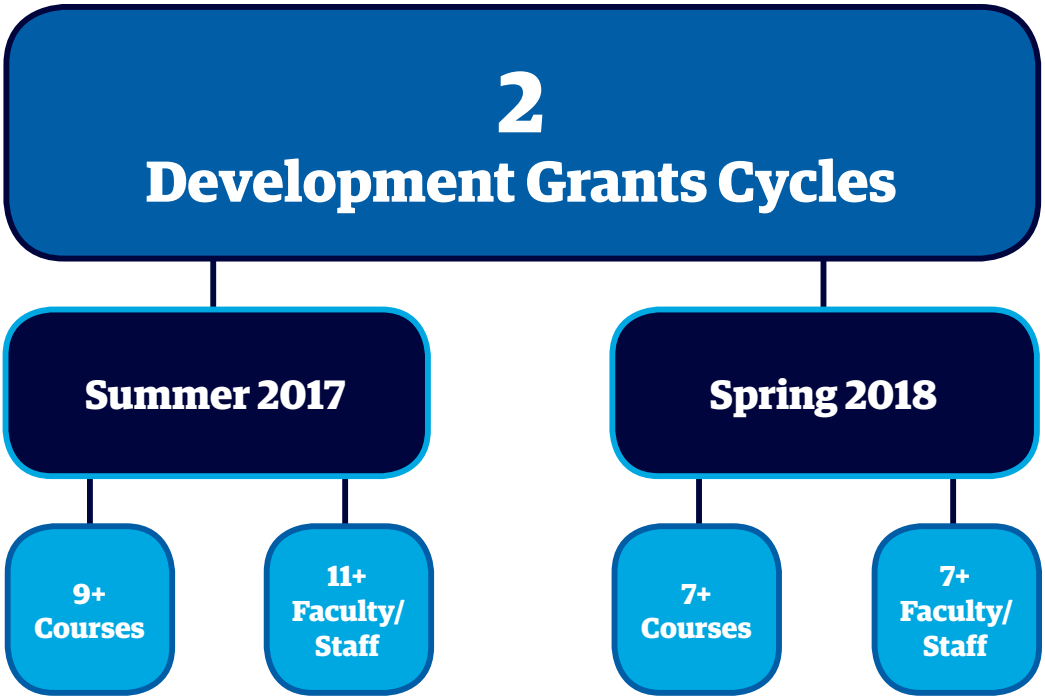
"My Skylight Development Grant and the matching funds from the Department of Computer Science allowed me to evaluate and improve CPSC 103, a first-year computer science course for non-majors. Through this funding I was able to hire a course developer/research assistant, Anasazi Valair, who facilitated focus groups with students, analyzed data from student surveys and focus groups, and made recommendations for change based on her findings. We worked together on the implementation of these changes. More than 600 students take CPSC 103 each year and these students will be positively impacted by the improvements we made during this project which would not have been possible without the Skylight Development Grant funding."

Meghan Allen, Instructor, Computer Science, project funded Spring 2017

SKYLIGHT DEVELOPMENT GRANTS PROVIDE UP TO $50,000 EACH YEAR

Skylight received **23 proposals** requesting a total of nearly **$80,000** in the 2017 Summer and 2018 Spring competitions. We awarded a total of **$50,000** to **16 proposals**.

The majority of the funded projects centered on introducing active learning techniques or improving existing ones in courses, while other projects focused on curriculum development and assessment of skill or knowledge.



Summer 2017

Department/ Program	Grant Holder
BIOL	Jennifer Klenz
BIOL	Liane Chen & Robin Young
CHEM	Jose Rodriguez Nunez
CS	Elisa Baniassad
EOAS	Maya Kopylova
EOAS	Sarah Bean Sherman
IRES	Kai Chan
SCIE ONE	James Charbonneau & Pam Kalas
STATS	Matias Salibian-Barrera

Spring 2018

Department/ Program	Grant Holder
CHEM	Jose Rodriguez Nunez
CS	Celina Berg
CS	Steven Wolfman
EOAS	Kirsten Hodge
IRES	Gunilla Oberg
PHAS	Emily Altiere
STATS	Melissa Lee

WE ARE A LEADER IN SCIENCE AND MATHEMATICS EDUCATION

Skylight is a distinct unit in the Faculty of Science. We are partners with the Science Dean's Office, Science departments, and CTLT, and our specialization in science and mathematics education sets us apart from other units on campus.

Over the past several years, Skylight has played a critical role in relating and translating faculty teaching and learning needs in order to promote student success. Working with campus partners, we have successfully streamlined and coordinated processes, raised awareness, and made resources and educational tools more readily available to our Science faculty.

In 2016, Skylight was mandated to support departments by working very closely with them to identify next steps, needs, and priorities for teaching and learning activities post-CWSEI. With CWSEI winding down in 2017, we took a closer look at our organizational structure, our function, and the scope of our operations, and have reimagined our work with a vision to coordinate and support all science teaching and learning initiatives with strategic importance under one unit.

CARL WIEMAN SCIENCE EDUCATION INITIATIVE (CWSEI)

The activities of the renowned CWSEI were led by the work of Warren Code, Skylight's Associate Director, in collaboration with departmental faculty directors. As in recent years, this has involved the broader Skylight team in terms of advising and supporting the Science Teaching and Learning Fellows (STLFs) and the project teams in departments.

This was the final year of substantial activity across departments as part of the CWSEI and its extension (made possible by a donation from John and Deb Harris) in EOAS and PHAS. The few departments with remaining CWSEI funds hired their last STLFs, whose appointments will end in 2019.

Key CWSEI publications released this year included:

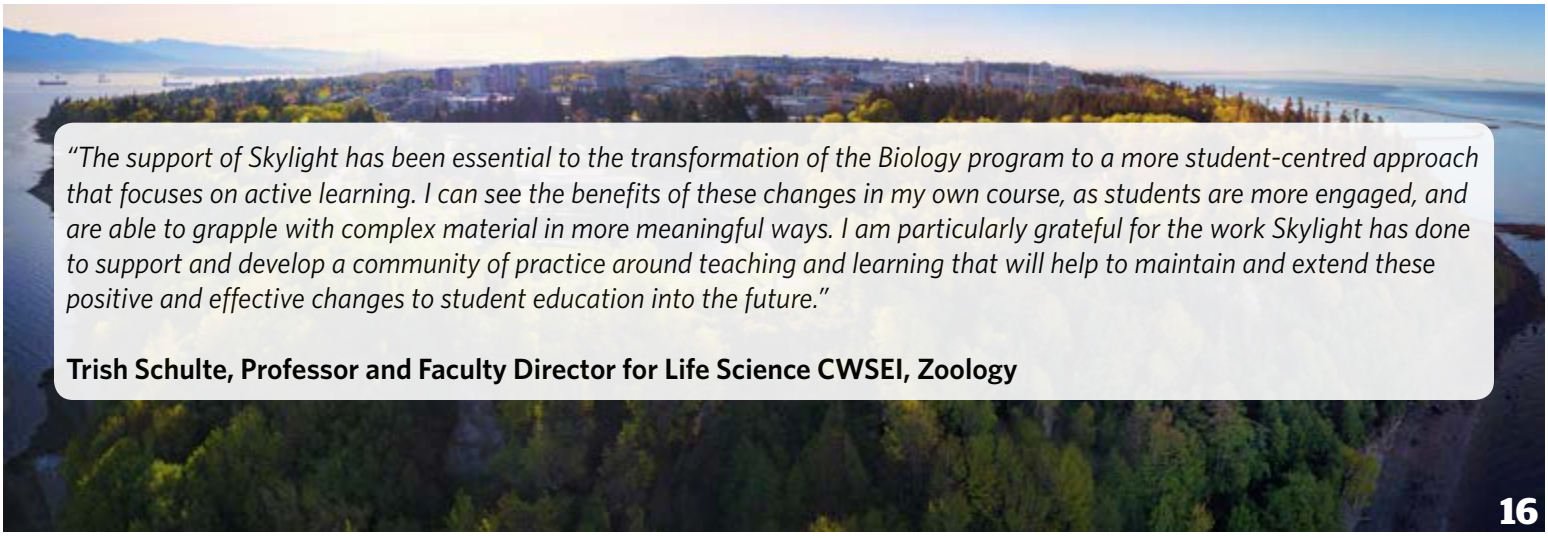
- Carl Wieman's book about the science education initiatives at UBC and CU Boulder, *Improving How Universities Teach Science: Lessons from the Science Education Initiative,* was published in May 2017.
- Francis Jones published the second in a pair of publications summarizing improvement efforts in EOAS, pulling together data sets involving most of the department's courses.
- STLFs in EOAS and PHAS published multiple studies that demonstrated the value of paired teaching as an approach for faculty development.

Substantial wrap-up projects that began or continued:

- The SEI Handbook, a how-to guide created by Warren Code and Stephanie Chasteen as a complement to Carl Wieman's book, was published in Fall 2018.
- Examining effects on grades across courses taught in the Faculty of Science, relative to the number of transformed courses in a student's program, in collaboration with the Planning and Institutional Research (PAIR) office.
- Survey of STLFs past and present to help describe the role and its variation more clearly.
- Migrating the SEI Course Materials Archive (sei.ubc.ca) to a platform that will be more sustainable in the long term.
- Planning for a rework of the very popular CWSEI website (cwsei.ubc.ca).

STLF Activity for May 2017-April 2018

Department	# of STLFs	Notes	Highlights	# of Faculty Involved	# of Courses Impacted	# of Students Impacted
BOTA/M&I/ ZOOL (Life Sciences)	2	1 STLF from May–September 2017 and 1 STLF from March–May 2018	• Improving first-year labs (BIOL 140) • Study of reading primary literature across Biology courses	6	3	1,600
CHEM	1	Until August 2018	• Integrated third-year labs	4	4	220
CS	2	Until August 2018	• Study of student experience and success in introduction to computer science course • Wireless traffic as a measure of classroom (dis)engagement	3	5	2,400
EOAS	3	2 STLFs until August 2018, then 1 ongoing	• Paired teaching (support, publication) • Graduate student training in teaching • Consulting for various courses • Field courses	10	10	800
MATH	1	Until December 2018	• Predictive modelling of first-year course success • Online homework (WeBWorK) usage patterns	3	10	6,000+
PHAS	3	2 STLFs at a time (3 in total)	• Paired teaching (support, publication) • Inquiry labs • Two-stage exam study	4	3	400
STATS	1	Former STLF as paired teaching partner	• Paired teaching with new faculty member	1	1	140



"The support of Skylight has been essential to the transformation of the Biology program to a more student-centred approach that focuses on active learning. I can see the benefits of these changes in my own course, as students are more engaged, and are able to grapple with complex material in more meaningful ways. I am particularly grateful for the work Skylight has done to support and develop a community of practice around teaching and learning that will help to maintain and extend these positive and effective changes to student education into the future."

Trish Schulte, Professor and Faculty Director for Life Science CWSEI, Zoology

WE CONTINUE TO INFLUENCE THE WORK OF OTHER INSTITUTIONS

BAY VIEW ALLIANCE (BVA)

We supported the activities of the BVA, a multi-institution organization, by:

- Engaging in conversations with BVA institutions on two new Research Action Clusters (RACs).
- Contributing to the development of a National Science Foundation proposal, led by the University of Indiana at Bloomington, and centred on a learning analytics research community to improve student success within and across STEM.
- Attending the December 2017 biannual virtual meeting.

TRANSFORMING EDUCATION, STIMULATING TEACHING AND LEARNING EXCELLENCE (TRESTLE)

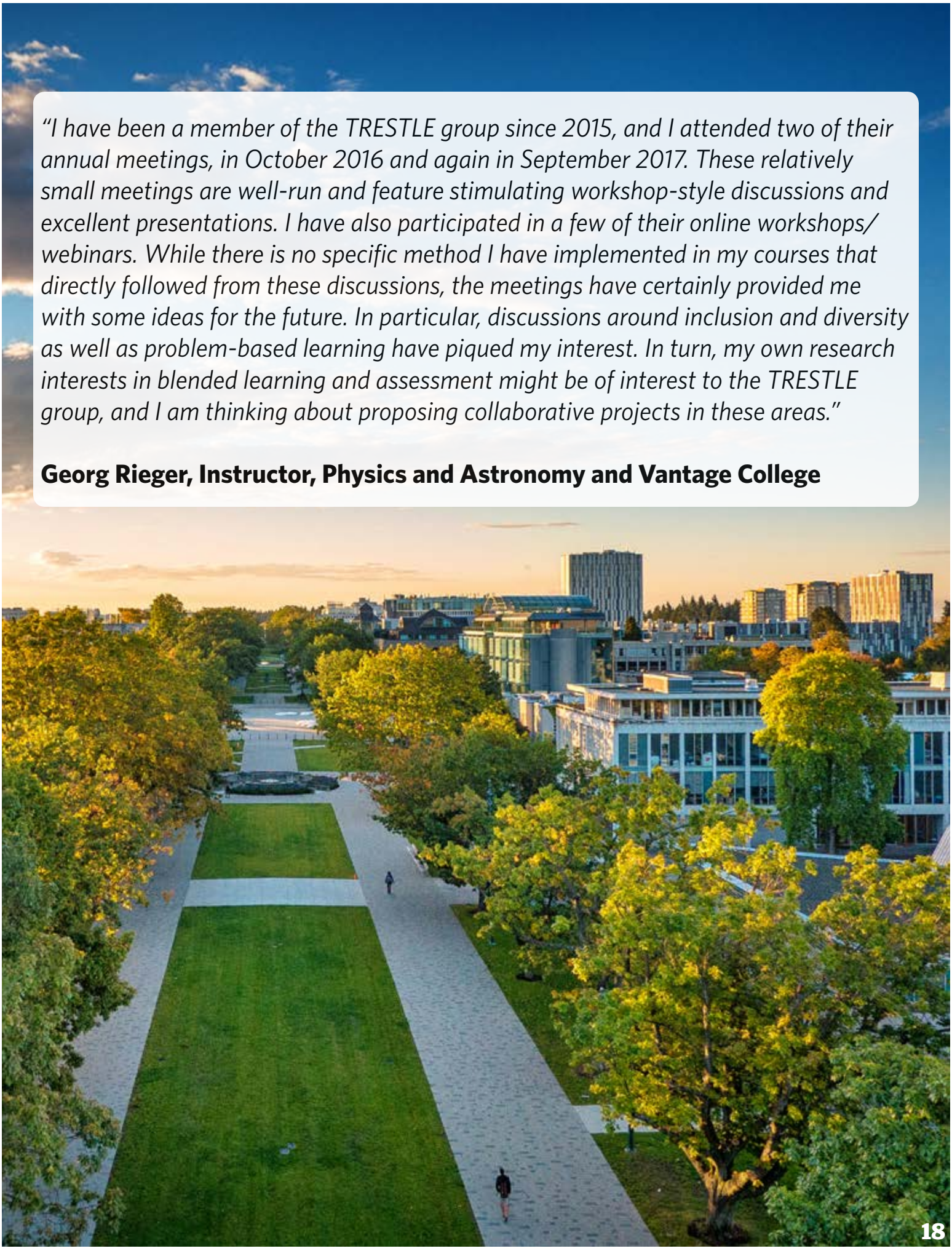
We continued supporting the activities of TRESTLE, a multi-institutional, multi-year project supported by the National Science Foundation, in its implementation and evaluation of the embedded expert model adopted from the CWSEI to improve STEM education at research universities.

We promoted TRESTLE networking and idea-sharing opportunities to our Science faculty and Skylight staff. We also helped design and conduct the TRESTLE Annual Meeting, including conceptualizing the goals and major activities of the meeting, assembling a UBC faculty team to attend, leading workshops, and presenting case studies and posters on UBC's course transformation work.

We contributed to TRESTLE's website and helped develop its virtual brownbag series, facilitating multiple sessions and covering topics such as faculty buy-in, facilitating change in a department, and developing learning goals with a faculty working group.

Learn more about TRESTLE at https://trestlenetwork.org.

In addition to our mentorship role in the TRESTLE network, we advised other institutions in their efforts to improve STEM teaching. We went on a site visit to the University of Engineering and Technology (UTEC) in Lima, Peru, and provided further consulting with Imperial College London, which is setting up its own institution-wide initiative using the CWSEI model. We also reviewed graduate student-generated Teaching As Research (TAR) proposals for CIRTL@UBC, in collaboration with CTLT.



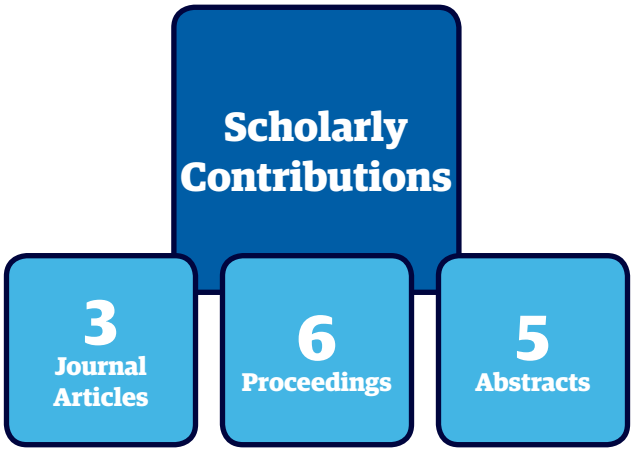
"I have been a member of the TRESTLE group since 2015, and I attended two of their annual meetings, in October 2016 and again in September 2017. These relatively small meetings are well-run and feature stimulating workshop-style discussions and excellent presentations. I have also participated in a few of their online workshops/ webinars. While there is no specific method I have implemented in my courses that directly followed from these discussions, the meetings have certainly provided me with some ideas for the future. In particular, discussions around inclusion and diversity as well as problem-based learning have piqued my interest. In turn, my own research interests in blended learning and assessment might be of interest to the TRESTLE group, and I am thinking about proposing collaborative projects in these areas."

Georg Rieger, Instructor, Physics and Astronomy and Vantage College

WE ARE COMMITTED TO A RESEARCH-INFORMED APPROACH

Our scholarly work, produced in collaboration with faculty, focused on:

- Evaluating classroom activities and interventions (peer review in First-Year Seminar in Science, guiding inquiry, promoting writing and argumentation skills, and an Academic Scholars Program to foster student sense of belonging).
- New course development to improve non-majors' experiences.
- Reporting findings from homegrown validated surveys (Mathematics Attitudes and Perceptions Survey, Teaching Practices Survey).
- Collaborative approaches towards improving student learning and student experience in large classes.



List of Publications

Journal Articles

- Roll, I., Butler, D., Yee, N., Welsh, A., Perez, S., Briseno Garzon, A., Perkins, K., Bonn, D. (2018) Understanding the impact of guiding inquiry: The relationships between directive support, student attributes, and transfer of knowledge, attitudes, and behaviours in inquiry learning. Instructional Science, 46(1), 77-104.
- Welsh, A.J., Shaw, A., Fox, J. (2017) The pairing of a science communications and a language course to enrich first-year English language learners' writing and argumentation skills. Journal of College Science Teaching, 46(5), 64-72.
- Birol, G., Briseño-Garzón, A., Han, A. (2017) Faculty Teaching Practices and Perceptions: Comparative Analysis Based on Time Spent Lecturing. Collected Essays in Learning and Teaching, (10), 27-44.

Proceedings

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- Jandciu, E. (2017) A Science-Based Writing Across the Curriculum Program, FORCE2017, Berlin.

WE SERVE ON UBC COMMITTEES AND SUPPORT PROFESSIONAL ORGANIZATIONS

We represent Science by serving on committees and attending meetings, with the potential outcome of impacting strategic decisions and supporting UBC's vision at many levels:

- Department-level committees
- Faculty of Science-level committees
- UBC-level committees

We also hold professional memberships to support organizations in their efforts of shaping the future of higher education, including Science Writers and Communicators of Canada, EDUCAUSE, and the Society for Teaching and Learning in Higher Education.

Last year, we peer-reviewed work submitted to:

- Canadian Journal of Scholarship of Teaching and Learning
- Future of Research Communications and e-Scholarship (FORCE) 2017 Conference
- International Artificial Intelligence In Education Society
- International Special Interest Group for Innovative Use of NLP for Building Educational Applications
- International Society for Learning Analytics
- PLOS Computational Biology
- Western Conference on Science Education

OUR TEAM MEMBERS PARTNER WITH SCIENCE STUDENTS AND FACULTY

OPPORTUNITIES FOR STUDENTS TO GAIN WORK AND EXPERIENCE

Last year, multiple TLEF projects led by faculty benefited from student involvement. We worked closely with students, and had Learning Technology Rovers and Canvas Technology Rovers on our team to support faculty with their learning technology ecosystem-related work.

We worked with:

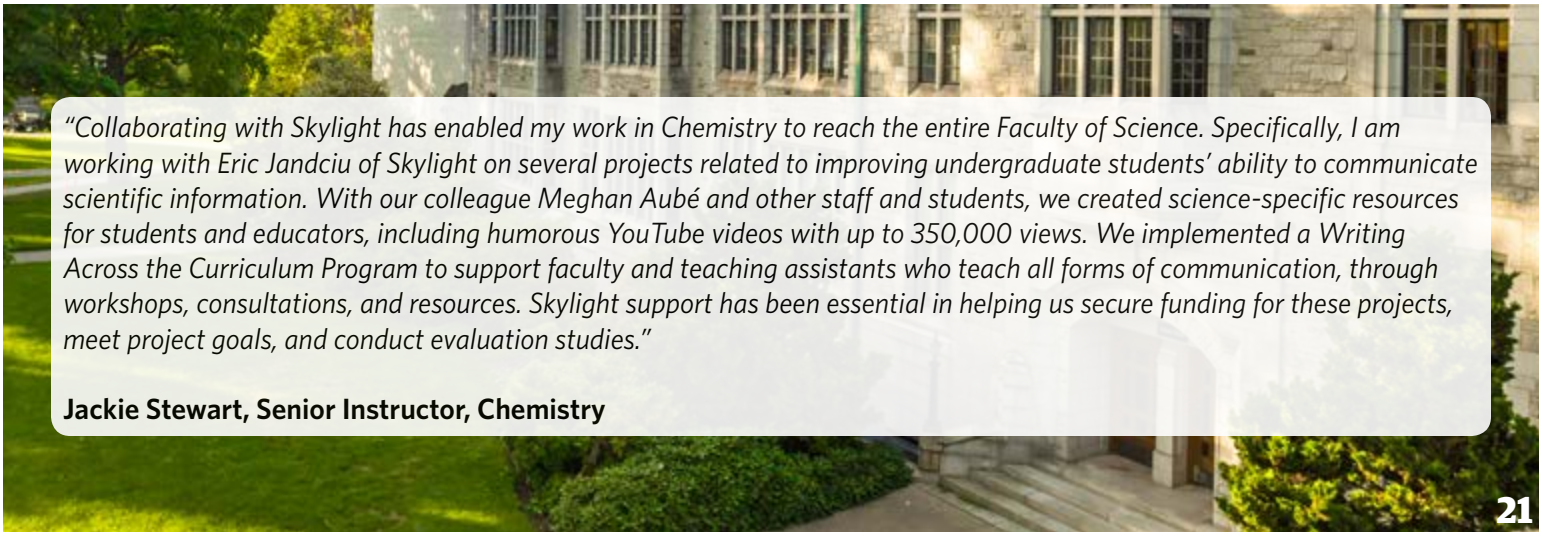
- 5 Co-op Students and 1 Staff Student
- 2 Work-Learn Students
- 5 Learning Technology Rovers (Co-op Students)
- 3 Canvas Technology Rovers (Co-op Students)

EDUCATIONAL LEADERSHIP

We continued supporting the educational leadership efforts of our Science faculty to achieve their teaching and learning missions and mandates, and to enable their research-informed educational leadership activities, ranging from large-scale strategic projects to small-scale grassroots projects.

Last year, we collaborated with Susan Allen, Associate Dean, Faculty and a professor in EOAS, to engage in Faculty-wide conversations around educational leadership. We ran a workshop with the purpose of providing examples from the Faculty of Science on how to document the impact of educational leadership activities and the evidence that is used to support this impact. The educational leadership activities in Science specifically centred on impact on practice, student success, processes and policies, other instructors, curriculum, scholarly literature, and other educational leadership activities. This was in support of and to inform the campus-wide effort led by Simon Bates, then Senior Advisor, Teaching and Learning and Academic Director, CTLT, to evaluate the diverse activities of educational leadership at UBC.

Given the breadth of educational leadership seen in the Faculty of Science and the potential complexity and challenges of providing evidence of impact in some cases, it became important to co-authour a discussion paper that collates and shares examples of educational leadership in the Faculty of Science, now available at https://science.ubc.ca/sites/science.ubc.ca/files/FacultyofScience_EL_DP.pdf.



"Collaborating with Skylight has enabled my work in Chemistry to reach the entire Faculty of Science. Specifically, I am working with Eric Jandciu of Skylight on several projects related to improving undergraduate students' ability to communicate scientific information. With our colleague Meghan Aubé and other staff and students, we created science-specific resources for students and educators, including humorous YouTube videos with up to 350,000 views. We implemented a Writing Across the Curriculum Program to support faculty and teaching assistants who teach all forms of communication, through workshops, consultations, and resources. Skylight support has been essential in helping us secure funding for these projects, meet project goals, and conduct evaluation studies."

Jackie Stewart, Senior Instructor, Chemistry

SKYLIGHT FACULTY ADVISORY COUNCIL

2017/2018 Skylight Faculty Advisory Council Members

Gülnur Birol
Director, Skylight

Warren Code
Associate Director, Skylight

Greg Bole
Senior Instructor, BOTA/ZOOL

Bruce Dunham
Senior Instructor, STATS

Marcia Graves
Instructor, M&I

Joss Ives
Instructor, PHAS

Costanza Piccolo
Instructor, MATH

Rachel Pottinger
Associate Professor, CS

Georg Rieger
Instructor, PHAS (on leave)

Trish Schulte
Professor, ZOOL

Stuart Sutherland
Professor of Teaching, EOAS

Jay Wickenden
Instructor, CHEM

Ian Cavers
Associate Dean, Students
(ex-officio)

Sara Harris
Associate Dean, Academic
(ex-officio)

Faculty members played an important role last year in liaising with their departments and advising us on matters of strategic importance, including the development of the BSc Degree Outcomes framework, the transition to Canvas, and our CWSEI transition plan. Each council member spent over 10 hours in meetings and in completing work for these meetings, providing valuable feedback on strategic projects and communicating with their colleagues to raise awareness of and to solicit input on issues at hand. Many of the council members contributed significant time and effort into the success of the SES recruitment process by serving on joint Skylight-department hiring committees.

We were able to support four council members in attending teaching and learning conferences, using funds earmarked by the Dean of Science for the council.

"Over the past year we have been mapping field skills across the EOAS geoscience curriculum to highlight omissions, duplications and identify new opportunities. At the same time faculty were polled regarding the overall 'fit' of their particular specializations with proposed BSc outcomes presented to the Skylight advisory council. This has enabled us to place our understanding of departmental teaching goals (both at the level of cross-curricular skills and broader specialization goals) into the contextual framework of an overarching science degree. The process of considering broader degree outcomes that was inspired by meetings in the advisory council, will likely continue in future curriculum considerations."

Stuart Sutherland, Professor of Teaching, Earth, Ocean and Atmospheric Sciences

SKYLIGHT IN 2018/2019

We are looking forward to working on three large projects this year (among many others):

Bringing the Student Diversity Initiative to Science: in partnership with the central UBC Student Diversity Initiative team, the goal of the Student Diversity Initiative at Science is to work towards 'inclusive excellence' in student learning experiences. Broadly, this involves incorporating strategies into our teaching and curricula to increase student engagement and their feelings of belonging and inclusion. We will also be finding ways to leverage diversity within our fields to broaden and enrich learning for all students taking Science courses.

Supporting and evaluating the new Teaching Start-Up Program in Science - Paired Teaching: the goal of this initiative is to provide each incoming tenure-track faculty member in the Faculty of Science with early support for implementing evidence-based teaching principles. The incoming tenure-track faculty member is paired with a faculty member experienced in evidence-based pedagogy to teach an existing, well-structured course. Paired teaching is a true collaboration: both instructors are in the classroom for all class meetings and teaching responsibilities are shared evenly. Teaching pairs meet regularly with a Science Education Specialist throughout the term.

Engaging in a comprehensive learning analytics needs analysis and development of a support model for Science: the goal of this work is to explore the interests and needs of Science faculty in learning analytics in a systematic way, and to inform campus-wide decisions around the future of learning analytics research and applications.

MESSAGES FROM OUR PAST AND CURRENT ASSOCIATE DEANS

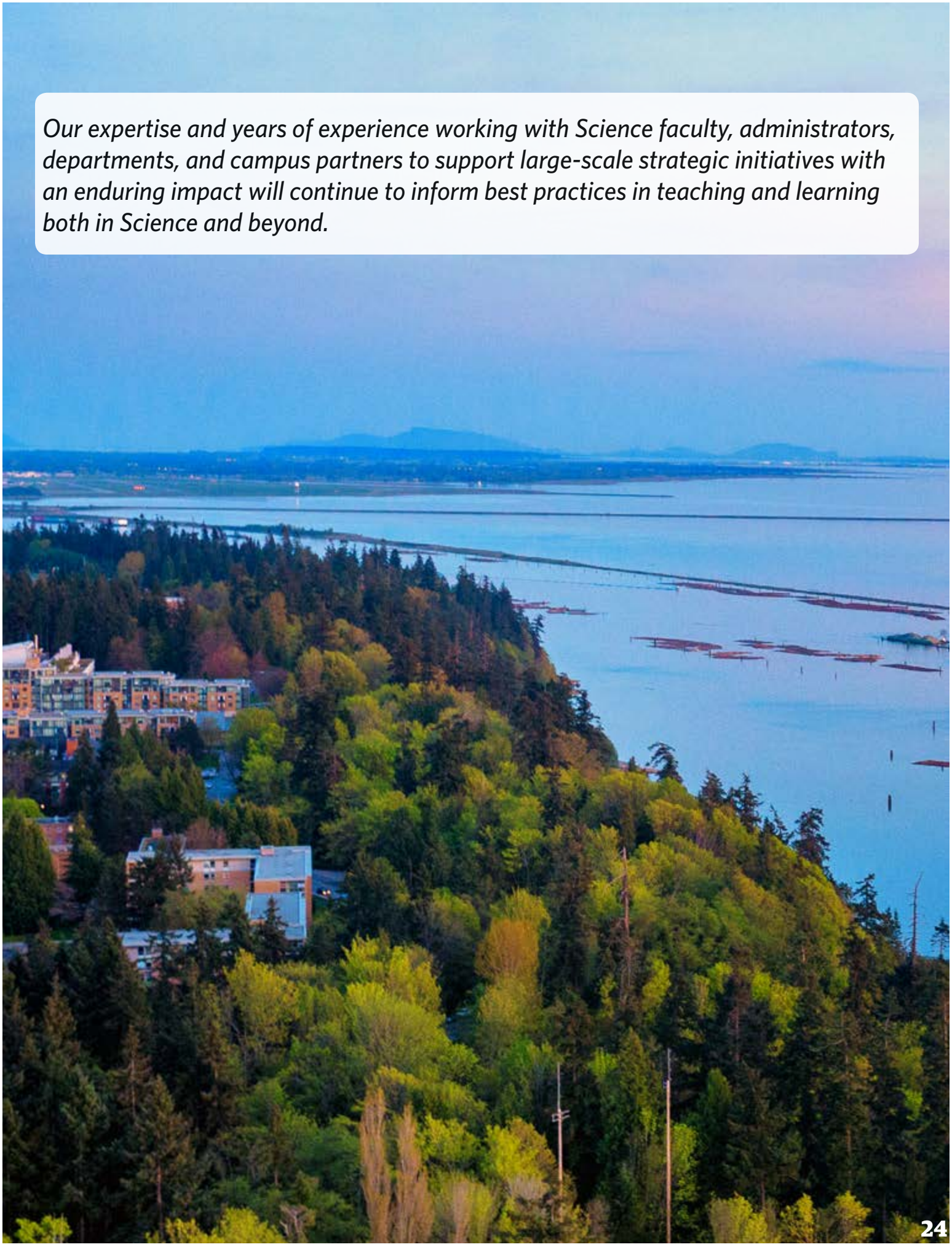
"Eighteen years ago Skylight started with two full-time staff members with the goal of advancing teaching and learning by facilitating the vision of faculty, departments and the Faculty of Science. Since that time it has worked through good times and bad—at one point being reduced to a single member. Through our collective vision, perseverance, extraordinary skill sets, and hard work it has grown into the premier learning and teaching unit at UBC and perhaps beyond. While I have been sad to step away from the day-to-day work of this amazing group of people, I am excited by the fresh perspectives Associate Dean Harris brings to the team and will watch with great anticipation as Skylight supports the students and faculty of Science to reach even more lofty goals."

Ian Cavers, Associate Dean, Students, and Senior Instructor, Computer Science

"Skylight has been skillfully built into a premier science teaching and learning centre with an outstanding team of dedicated, expert, and collaborative people. Before joining the group in September 2017, I was aware of Skylight's positive impacts on student learning, and on faculty & staff professional development. In the past year, I have learned far more about the extent of Skylight's excellent work not only in Science, but across UBC and in collaboration with external partners. An impressive number and variety of T&L initiatives have been successful in part because of Skylight support and involvement. I look forward to working with Skylight to maintain and strengthen support for faculty and students, including in particular: (1) help more incoming faculty members use and adopt research-informed teaching practices, (2) expand use of data to inform teaching and curriculum decisions, and (3) launch a new partnership to address issues of diversity, equity and inclusion in student learning experiences in Science. Skylight is a gem, and I am excited about the future of science teaching and learning."

Sara Harris, Associate Dean, Academic, and Professor of Teaching, Earth, Ocean and Atmospheric Sciences

Our expertise and years of experience working with Science faculty, administrators, departments, and campus partners to support large-scale strategic initiatives with an enduring impact will continue to inform best practices in teaching and learning both in Science and beyond.



Annual Report Enquiries

Gülnur Birol, Director
604.827.3414

birol@science.ubc.ca

General Enquiries

Skylight (The Science Centre for Learning and Teaching)
Faculty of Science
The University of British Columbia
2178-2207 Main Mall
Vancouver, BC, Canada
V6T 1Z4

skylight@science.ubc.ca

General Information

Please visit https://skylight.science.ubc.ca/about to download our prospectus, *Advancing the Science Behind Education*.

UBC Science

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