



THE UNIVERSITY OF BRITISH COLUMBIA
Faculty of Science

SKYLIGHT Annual Report 2020/2021



SKYLIGHT: The Science Centre for Learning and Teaching

We acknowledge the traditional, ancestral, and unceded territories of the x^wməθk^wəyám (Musqueam), Skwxwú7mesh (Squamish), and Selílwitulh (Tsleil-Waututh) nations from where we worked, lived, and played during the pandemic.

Introduction

This year's annual report is centered on our experiences, actions, and reflections regarding the impact of the pandemic on our work between March 2020 and August 2021. The pandemic changed more than where we work, it changed how we work, too. Despite our physical separation, we have never been closer to our team members and our science education community, and we send our heartfelt gratitude to them.

We thank Erika Borys, Alice Campbell, Matthew Coles, Toren Darby, Naoko Hawkins, Eric Jandciu, and Jeanette Leuwneer for their significant contributions to Skylight and UBC Science, and we wish them well in the next chapter of their careers. We also welcome the new members of our team: Zohreh G. Moradi (Research Analyst), Gaitri Yapa (Mathematics Science Education Specialist), Maï Yasué (Science Equity Strategist), and Michael Zhang (Learning Technology Analyst).

The work presented in this report is a result of our collaborative efforts with UBC Science faculty, with whom we share the mutual goal of improving student well-being, learning, and experience in UBC Science. Our work is grounded in current research on teaching practices and academic policies and procedures, and during the pandemic it was informed by the Science Planning for the Future (SPFF) group. The SPFF group, led by Associate Dean, Academic Sara Harris and Associate Dean, Students Ian Cavers, consisted of faculty, staff, and student representatives from all UBC Science departments, Medicine, Pharmaceutical Sciences, Skylight, and Science Advising.

Block funding received from UBC Central and the Government of Canada's Student Work Placement Program enabled UBC Science's efforts in online teaching.

Transition to Online Teaching

On March 13, 2020, UBC announced that all courses would move online and that non-essential staff would work from home. Members of the Skylight team provided critical support to faculty members as they shifted their course materials, teaching, and assessment online. Our team was also deeply involved in supporting faculty in moving their exams online and in weighing the benefits and challenges of various assessment, grading, and invigilation options. During this transitional period, we kept close contact with UBC Science instructors, administrators, teaching assistants, and students to ensure their needs were met in a timely manner.

We began planning for the Summer Session while final exams were wrapping up for Winter Term 2 (2020). Our team members reached out to all UBC Science instructors teaching in the Summer Session, and they developed an online Canvas hub to better support these instructors. We connected with every instructor prior to the summer term to support the transition of courses online.

During the summer, we focused on planning and preparing for the next Winter Session (2020/2021). We shared effective online teaching practices and dug further into the academic integrity issues that arose in the previous months. Our Learning Technology (LT) Team prepared resources and further documentation for learning technologies, including LTs for laboratories, and offered regular drop-in sessions for faculty and staff.

In Term 1, we implemented our plans and supported instructors, many of whom were offering their fully online courses for the first time. In Term 2, we continued offering support. As a result of our efforts, instructors felt more comfortable teaching online, had more realistic expectations of what they could do, and had a better understanding of their students' needs.

In the following summer, we focused on planning and preparing for support for in-person classes with students returning to campus.

Supporting Online Teaching

We adapted our support model to meet the rapidly changing needs of instructors across all UBC Science departments while adjusting to working from home ourselves. Most of our work, especially in the transitional phase of the pandemic, shifted to providing LT support and to capacity building efforts within our unit. In addition to our LT Team, our Science Education Specialists (SEs) became critical nodes for LT support, particularly in the early stages of the pandemic. In some cases, new technologies for delivering learning and teaching at scale were introduced for the first time (e.g., Zoom, LTs for Laboratories), resulting in new challenges.

Learning Technology

We created and serviced more than 2,000 Canvas course shells in the 2020/2021 academic year. These courses were richer in content and learning activities than in previous years due to the courses being online. The demands on our user guides increased more than 250%, LT tickets more than doubled, and hands-on support requests increased 135% from 2019 to 2020.

The number of service tickets we received increased:

- 78% from 2019, for the period May 1–August 31, 2020
- 67% from 2019, for the period September 1–December 31, 2020
- 22% from 2020, for the period January 1–April 30, 2021

Our service tickets decreased by 30% for the period May 1–August 31, 2021. These numbers exclude the significant hands-on support and troubleshooting assistance that our SEs provided.

Our LT Team members, who kept busier than ever, continued their strong partnership with CTLT and the LT Hub. Using the UBC Central block funding, we were able to welcome two junior support analysts on a contract basis.

Drop-in Sessions

We offered over 40 drop-in sessions at the UBC Science and department level (a 400% increase from 2019), and more than 250 people attended these sessions. Our LT Team and SEs, with the support of our Educational Consultant from CTLT, facilitated UBC Science-wide and department-specific sessions specifically designed around pedagogy and LT to provide one-on-one support to instructors. Our Learning Technology Rovers continued to offer regular drop-in sessions for technical support.

Self-serve LT Guides and Resources

The LT section of our website became UBC Science's hub for LT updates. The LT Team, with the support of our Administrative Coordinator, kept an up-to-date inventory of user guides and documentation. These pages were visited 9,415 times in 2020, an increase of 123% from the previous

year—the most visited page being our Zoom guide, which became the campus-wide model for [Zoom resources](#), followed by our [Alternate Exam Resources page](#).

Science Canvas Templates

In response to students' reported challenges in navigating their online courses, our LT Team developed two Canvas course templates: the [Science Canvas Template \(module structure\)](#) and the [Science Canvas Template \(weekly structure\)](#) (note: these links require a Canvas login). These templates are informed by Universal Design for Learning guidelines, student well-being practices, and web content accessibility guidelines. We helped create consistency across UBC Science's online courses, making it easier for students to find important information in predictable places.

Pedagogy

We gathered needs and updates from instructors across the UBC Science departments in five ways: targeted broadcast emails; LT tickets and emails; SES participation in department meetings and communication channels; drop-in sessions; and other direct communication in emails and Zoom meetings. We kept each other informed through frequent meetings across the Skylight team to make sure we all had a good overview of current and upcoming needs, which helped us develop recommendations and resources to meet faculty members' needs and share our work in a timely manner. We also surveyed faculty in advance of the return to campus in 2021. The survey results informed plans and decisions both at the Faculty and UBC level.

Instructors shared with us that they were keen on adapting the pedagogies (e.g., activities, group work, small group chats) they used in their in-person courses to their remote teaching. Skylight team members worked one-on-one with many instructors to support these adaptations. The instructors mentioned benefitting from hearing what their colleagues were doing in their courses in a variety of channels.

We also heard that instructors faced challenges around engaging students with course materials and with each other; estimating their workload; and gauging their satisfaction, inclusion, and well-being. Further, the time instructors needed to create or adapt existing materials for online assessments and to switch to new assessment types (including time to design and test labs) was a point of tension. However, they reported increased student participation (e.g., asking questions, offering ideas, attending office hours) in comparison to pre-pandemic courses, as the students became more comfortable with the technology and online pedagogies, and found more opportunities to participate.

To address these emerging challenges and opportunities, we focused our efforts on LT support, often providing expertise on pedagogy in the context of online teaching and learning. While supporting instructors, SESs undertook significant professional development and training on learning technologies, often stepping in to assist with LT support requests that would otherwise have gone to the LT Team. These efforts are discussed in the following sections of this report.

Consultations

Of the topics we consulted on, 45% were related to online teaching and were centered on LT implementation, class preparation, and evaluation efforts. Notably, 55% of our consultations covered a wide range of topics such as pedagogy, learning analytics, and faculty-initiated projects, but mostly on issues around equity and inclusion (25%).

Through our consultations, collaborations, and engagement with faculty on teaching and learning projects, the Skylight team worked with nearly every UBC Science instructor. To date, our work has impacted every undergraduate science course during the pandemic.

Science Online Teaching 2020

We developed [Science Online Teaching 2020](#) (note: requires Canvas login), a self-directed Canvas hub that provided instructors with recommendations on all aspects of online course design and offered an online discussion forum. We were pleased to see 214 people join the hub.

Resources for Inclusive Teaching Practices

Our [Inclusive Teaching Resources for UBC Science Instructors](#) page offers suggestions for making course and classroom environments more equitable, inclusive, and engaging for all students across disciplines.

Mid-course Survey Templates

We created [two Qualtrics survey templates](#) for instructors to use in their courses to gain student feedback in a timely manner on particular aspects of their course to inform improvements, to demonstrate to students—in a highly visible way—that they care about their students' feedback and their learning, and to encourage dialogue between instructors and students.

Recommendations

While we navigated the online teaching space, a series of recommendations on a variety of topics emerged. They were based on the practices and experiences of instructors, TAs, and students, and built on other UBC and external resources. We offered ideas and processes for [alternate exams](#) to replace in-person, paper-based exams that students could take remotely. We also developed a set of recommendations for [break-out rooms](#) to promote student learning and well-being.

Supporting Equity and Inclusion in STEM

In support of the UBC Science strategic plan for strengthening relationships and equity within and across disciplines and roles, we partnered with the Equity & Inclusion Office (EIO), CTLT, and UBC Science departments, and engaged with faculty, staff, and students on activities centered around equity, diversity, and inclusion at the departmental and the Faculty level. We experienced a significant increase in support requests for EDI-related queries, much of which moves beyond Skylight's mandate but clearly demonstrates the need for such support and attention in UBC Science.

Our efforts included:

- Meetings with individuals and groups in departments
- Talking to and supporting capacity building for associate deans and unit heads
- Leading the work of the EDI committee in EOAS
- Reviewing and synthesizing STEM education literature and websites
- Promoting the work of equity-owed groups
- Organizing and facilitating events
- Contributing to interactive workshops for faculty in Mathematics; Statistics; Earth, Ocean and Atmospheric Sciences; and Botany and Zoology

- Preparing recommendation documents and curated resources

We shared our resources [on our website](#) and disseminated our equity, diversity, and inclusion (EDI) efforts at the [X-DBER conference](#) in February 2021. Funding from the EIO allowed us to hire a graduate student to include their perspective in our EDI work and to support the development of resources, including a literature review.

It was our goal to meet instructors, TAs, and staff where they were in their understanding of justice, equity, decolonization, and inclusion, and to surface relevant practices and activities in an effort to help them build capacity in their local contexts. We not only uncovered areas for improvement in UBC Science, but also witnessed great initiatives and examples of best practices that are currently in place and that can be amplified to benefit everyone, including equity-owed groups.

The STEM Summer Series in 2021, organized in collaboration with the EIO and CTLT, brought people together to exchange ideas, experiences, and practices, and to raise awareness around issues of anti-Black and anti-Asian racism and many other inequalities that society faces today. Topics included responding to racist attacks within units and getting started with EDI committees, and the series had far-reaching goals and a wide audience. Specific to teaching and learning, we offered workshops on designing courses with inclusion and decolonization in STEM, and on promoting equity and inclusion in labs and classrooms. More than 300 people across STEM disciplines attended these sessions.

Our Summer 2021 Reading Group participants read *Braiding Sweetgrass* by Robin Wall Kimmerer. The sessions were attended by more than 30 people in UBC Science, and they contributed to expanding our understanding of decolonization and Indigenous ways of knowing. In the fall, we also facilitated a discussion about the book *Indian Horse* by Richard Wagamese.

We collaborated with the Equity, Diversity, and Inclusion for Trainees (EDIT) group to offer workshops in Botany and Zoology. These workshops attracted more than 100 people.

Using the Science Student EDI Funds, we were pleased to co-sponsor an EOAS-organized event that featured Dr. Patience Mpofu. Dr. Mpofu presented her ongoing work building diversity in STEM with an emphasis on the geosciences, drawing upon lessons from her life and other successful women in geosciences in academia and industry. The event was attended by more than 100 people.

We also built capacity among our team members to deepen our understanding of the UBC Indigenous Strategic Plan (ISP), the impacts of colonization on Indigenous peoples, and decolonization. Efforts included creating professional development opportunities for our staff and on dialogue around land acknowledgements, the ISP, and the ISP assessment tool.

Community Building Efforts

Our community events moved online and served as an opportunity to network and share experiences. These events became even more important when there was a growing concern about the well-being and burnout of instructors, staff, and students. To help instructors and TAs navigate changes in pedagogy and technology, we offered workshops and events highlighting practices, student and instructor experiences, and training and development. Notably, we were able to reach a wider audience than ever due to the increased accessibility of our online events.

Skylight Online Teaching Series

Offered as a replacement to our in-person Science Education Supper Series, the Skylight Online Teaching Series featured topics driven by the interests of instructors, such as running labs online, a UBC Science student panel on their reflections and experience with online learning, and a TLEF-funded project on Paperless Open Marking.

Science Education Open House

The Science Education Open House, our signature annual event, was also delivered online in 2020. It included a roundtable discussion on instructor reflections about their online summer courses, and conversations around academic integrity and inclusive practices in online science courses. Our event brought 120 people together.

TA Training

Because the roles and responsibilities of TAs changed in the online teaching context, we offered [suggestions for TA training and responsibilities](#) to UBC Science departments. We also worked closely with Botany, Zoology, and Statistics to reach more than 300 graduate students and teaching postdocs to offer training.

Jupyter Days

We co-hosted JupyterDays 2020, an event on teaching data science and scientific computing. This event reached 65 colleagues across UBC and beyond.

Supporting UBC Science's Strategic Plans

We were pleased to be part of the UBC Science strategic planning process. Our team members supported the feedback gathering stage, which informed the plan's future direction. We developed, implemented, and analyzed responses from the faculty and staff survey, the graduate student survey, and the alumni survey, and we wrote a comprehensive report on our findings. The surveys included both quantitative and qualitative questions, and they were completed by nearly 300 faculty, staff, graduate students, and other research personnel, as well as close to 1,300 alumni. We also participated in the implementation of student focus groups and student survey design, working in collaboration with Science Advising. The feedback from participants was extremely rich, honest, and insightful, and provided an important basis for the eventual [strategic plan](#).

We also supported the Education Working Group, with one of our team members serving as co-chair on a committee of UBC Science faculty engaged in teaching and learning leadership. The meetings were an opportunity for the group to develop strategies for the enrichment and innovation of science education and the student experience at UBC. The committee created recommendations that were shared with broader strategic planning groups. It also provided ongoing feedback on the emergent strategic plan, with specific attention to the education pillar.

Concluding Remarks from Our Associate Dean, Academic

An enduring characteristic of Skylight and its members is its creative flexibility in support of learning. Throughout our continually shifting academic ecosystem since March 2020, Skylight rose to challenge after challenge: expertly supporting a year of mostly online learning; assisting in the transition back to mostly in-person teaching; figuring out new learning technologies; building capacity among the team

to be best able to help instructors provide pedagogically sound learning experiences in new-to-most environments; expanding access to many of us to better see ourselves, our work, and UBC through lenses of justice, equity, decolonization, inclusion, and more; creating and sharing new, timely resources for faculty; supporting spaces for people to gather (mostly virtually), talk, work, and create together; and maintaining deep involvement in learning innovation projects that look toward the future.

Skylight continues to evolve with the broader teaching and learning community, working collaboratively to bring everyone along in whatever ways we are ready. Kudos to the Skylight team for their incredible work over this past year.

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General Information

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