Appendices

Appendix 1: Terms of Reference for External Review Team

Purpose of Review: To review the Department of Zoology's teaching and research activities, academic programs, and service; to evaluate the leadership and administration; to assess the Unit's standing nationally and internationally; and to advise on the future development of the Unit.

The review team will consider all relevant documents and materials and visit the campus to interview the department's faculty members, staff, students, postdocs, and relevant administrators. The review team will submit a report within 30 days of the site visit.

Without limiting its overall mandate, the review panel should consider the following sections as part of the current state of the department and assess the future opportunities and plans outlined in the self-study.

Previous External Review & Subsequent Actions

Note the work undertaken in response to previous unit review recommendations, any actions taken in response, and any issues that may also be raised as part of the unit review.

Strategic Plan: Vision, Priorities, & Implementation Strategies

Determine the extent to which the unit reinforces the key commitments of the Faculty of Science Strategic Plan and UBC's Next Century Strategic Plan through its programs and activities. Alignment with key strategic plans including the Indigenous Strategic Plan, Strategic Equity & Anti-Racism Framework and Roadmap (StEAR) (which captures Inclusion Action Plan, Anti-Racism & Inclusive Excellence Report, and Dimensions Plan) should be noted especially regarding the future needs of students, as well as institutional and societal challenges.

Research, Scholarly & Professional Activity

Evaluating the capacity to diversify scholarship and ways of knowing, as well as to engage in equitable and inclusive research programs and methodologies review and evaluate the quality, extent, range, and balance of the scholarly activities of the unit. Pay particular attention to the achievement and status of scholars and practitioners within the department, their leadership within their communities-of-praxis, their granting/funding success, and the quality and quantity of their performance in relation to the achievements of their counterparts in comparable units nationally and internationally. Using an inclusive excellence lens, consideration should be given to equitable assessment of research and scholarly achievements.

Teaching & Learning

This section provides information and an assessment of the quality of teaching and learning and educational leadership of the unit, adequacy of its resources, challenges, and opportunities for growth.

Educational Leadership

Consider the impact of the unit's educational leadership and opportunities for its development. Note the impact of educational leadership within the unit and, more broadly, on the Faculty of Science, the University and other institutions, including contributions to Indigenous, critical, accessible, and inclusive pedagogies and praxis.

Undergraduate Education & Student Learning

Review and evaluate the quality, extent, format, organization, and enrolment of the unit's academic programs and teaching strength and compare its performance in these areas to that of its national and international peers. Ensure the programs meet the BC Ministry of Post-Secondary Education and Future Skills expectations, assumptions and Degree Level Standards. Consider:

a. Methods for evaluating the quality and strength of its teaching and learning programs
b. Inclusive pedagogies and curricular alignment to changing societal expectations, internationalization and a more global classroom, accessibility, EDI, Indigenous ways of knowing, experiential learning opportunities, and current technology for accessible learning and classroom practices
c. Effectiveness of methods for the evaluation of teaching and learning, and the implementation of quality assurance and enhancement
d. Success of the unit's students after completion defined by follow-up surveys and graduate satisfaction measures
e. Quality of the student undergraduate academic experience from admission through to graduation
f. Student morale, retention, co-curricular opportunities, and career preparation across the diverse nature of student populations

Graduate Education & Postdoctoral Training

Review and evaluate the quality, format, organization, and enrolment of the unit's graduate programs, and compare their performance to programs offered by national and international peers. Ensure the programs meet the BC Ministry of Post-Secondary Education and Future Skills expectations, assumptions and Degree Level Standards. Consider:

a. Quality of advising, graduate student support, success of supervisory arrangements, career preparation, employment opportunities, time-to-completion, placement, and other indices of graduate success
b. Information regarding research doctoral, master's programs, and professional programs
c. Quality of the unit's postdoctoral environment, supports, and outcomes

People, Leadership, Culture & Governance

Review and evaluate the transparency, flexibility and accessibility to all members of the unit. Consider governance, organizational structure, leadership, planning, and administration of the unit, including opportunities for diversity in leadership and shared governance, the nimbleness and inclusiveness of planning, as well as the relevant support systems both within the unit and available to the unit.

People, Environment & Culture

Consider and assess the working and educational environment, morale, and institutional culture of the unit, as reflected in the experiences and perceptions of faculty members (including adjunct and associate members of the department, lecturers, and sessional instructors), staff, and students. Take into account support for career advancement, professional development, advising, and balanced workloads and give special attention to the unit's performance and perception by all members relative to the University's employment and education equity policies.

Nurturing a Culture of Equity & Inclusive Excellence

Consider how effectively the unit has created equitable opportunities for historically, persistently, and systemically marginalized students, faculty members, and staff to advance their careers and enable their positive contribution to the life and work of the university. Consider how effectively the unit has created opportunities for diversity in leadership, and levels of transparency, consistency, and accessibility in the management of faculty affairs.

Community Engagement & Outreach

Consider the nature, scope, and effectiveness of the unit's outreach activities through its educational and research programs and its interactions with other units within the Faculty of Science and with other Faculties. Also consider its external community, including schools, Indigenous groups, community or professional organizations, UBC alumni, government agencies, and other post-secondary institutions.

Physical Infrastructure & Facilities

Consider the range, quality, and accessibility of the teaching and research facilities at the unit's disposal, and whether the unit is appropriately housed and equipped to meet its teaching and research goals.

Financial Resources

Review and evaluate the financial resources of the unit, including its financial base (i.e., levels of university funding, funding by external agencies, tuition revenue, and donor support), its enrollment management capacity, and its revenue diversification plans.

Appendix 2: Response to the 2017 Department of Zoology External Review

Summary

In 2017 the Department of Zoology underwent a formal review by an external committee comprising Dr. Katie Gilmour, Professor of Biology, University of Ottawa, Dr. Locke Rowe, Distinguished Professor of Evolutionary Biology, University of Toronto, and Dr. George Somero, David and Lucile Packard Professor in Marine Science, Emeritus, Stanford University. This committee visited UBC on November 30 and December 1, 2017. The committee was provided with a self-study document in advance of their visit. During their visit, they met the Dean and Associate Deans of Science, Associate Dean of Graduate & Postdoctoral Studies, representatives of the Provost and Vice President, Research & International, Heads and Directors of other units in the Faculty of Science, and staff, faculty, graduate students and postdoctoral fellows in Zoology.

Overall, the Review Committee's report was very positive and commented on the excellence of Zoology's contributions to innovative teaching and world-class research programs, excellent staff, and our highly collaborative and collegial work environment. The committee had no significant criticisms of Zoology's performance but made several valuable recommendations for where the department could improve. Below is a synopsis of the major themes and recommendations from the review committee, along with our responses, actions and reflections. Quotes from the external review are given in italics.

1. Maintaining department cohesion:

Challenge: The distribution of Zoology faculty across three buildings (Biosciences, Life Sciences Institute and Biodiversity Center) was identified as a strength, but also presented challenges regarding departmental cohesion.

Although the spatial arrangement of the groups has obvious benefits in terms of disciplinary synergies, it has come at some cost to intra-departmental linkages. The challenge moving forward will be to retain cohesion as a departmental unit for Zoology faculty hired into multi-department environments.

Specific Recommendation(s):

a) *A recommendation to address this challenge is to extend the very successful BRITE/BRC PDF program to the comparative physiology and biomechanics, and cell and developmental biology research clusters. Collectively, these PDFs would be tasked with fostering intra-departmental linkages.*
   Response: Extending a BRITE-style PDF program to the entire department remains a priority, but funding for this program does not exist. We will continue identifying possible funding avenues, including working with the development office to identify donors.
b) *Another recommendation for facilitating interactions between zoologists housed in the LSI and those found in other buildings is to make access to the LSI more tractable. Security issues can hinder entry into the LSI building and offices found therein.*
   Response: To increase interactions for LSI faculty, all staff and other faculty who wish to access the LSI now have this capability.
c) *We recommend that the Department explore ways to improve services for LSI-based faculty.*
   Response: LSI-based faculty have an explicitly identified IT support person for their needs, and all core staff now have key card access to ensure rapid and timely service to LSI-based faculty. In addition, access to printers and photocopiers was also identified as an issue, which has also been rectified.

Beyond these direct recommendations, we continue to take actions to promote departmental cohesion. Departmental meetings and weekly coffee social gatherings rotate between buildings. We have revived and improved our annual graduate student research symposium. There are enhanced ties between the department and the Zoology Grad Student Association (ZGSA) through stable funding to support initiatives. The Zoology Association of Postdocs and Research Associates (ZAPRA) has been established to provide support and professional development to PDFs and RAs.

2. Maintaining size equality in the departmental research clusters:

Challenge: *Research faculty are organized into four research clusters; comparative physiology and biomechanics, cell and developmental biology, ecology, and evolution. This arrangement and the perceived equivalence of size and strength of each cluster were repeatedly cited by faculty as key to the collegial nature of the Department. Erosion of size-equality among the research clusters is a second challenge that the Department must face moving forward.*

Recommendation(s): *Because the culture of research cluster equivalence and its underlying assumption bring such significant benefits, in lack of infighting, mutual respect and collegiality, we recommend that effort be invested into better aligning reality with the assumption of roughly equal group sizes.*

a) *Assurances that positions currently occupied by Tier I CRCs will remain within the Department/cluster when the CRC term expires would be helpful.*
   Response: Zoology has done remarkably well in terms of recruiting into prestigious chairs (*eg*. Canada 150 Chair, CERC, etc.), and our complement of CRC chairs has decreased substantially in recent years, beyond what would be expected given the research excellence of Zoology. The primary reason for this is outlined in the research section of this self-study document and it remains a high priority to have CRC positions allocated to Zoology. Zoology has exceptional faculty members who should be recognized with CRC positions.
b) *We believe that it is in the long-term interests of the Department to rebuild, even marginally, the comparative physiology and biomechanics group.* Combined response below.
   Response**:** Since the 2017 review, three assistant professors have been hired into this group, bringing the total FTE in line with the other groups. One of these assistant professors left for another institution and we are currently concluding a search for their replacement. Once complete, all research clusters will have 8 or 9 FTE associated with them.

3. Continued investment and support for EL and Lecturers

Challenge 1: *The first issue relates to the age structure of the teaching faculty: Almost half of the members of this group are near sixty years of age, which suggests that there could be considerable turnover within the next few years.*

Recommendation: *We recommend that planning for recruitment/replacement commence soon, to ensure that these important positions remain staffed by people with the appropriate disciplinary focus and skill sets.*

Response: Over the past several years, our EL and Lecturer faculty have substantially renewed, with recruitment driven by disciplinary or pedagogical needs. Since 2017, we have recruited two new EL faculty members and nine new Lecturers. An EL faculty search in biostatistics and data science is also underway.

Challenge 2: *A second issue relates to a potential conflict between rational planning based on disciplinary/skill set needs and the desire to offer EL or lecturer positions to spouses of research faculty in the context of hiring or retention.*

Recommendation: *We recommend that the Department carefully weigh the merits of spousal appointments against the actual teaching needs of the Department.*
Response: This challenge stemmed from the perception that EL and Lecturer faculty positions were being reserved to help recruit spouses of research faculty. Before 2017, this was a common practice, but since 2018 is not the approach used for recruiting EL faculty and Lecturers. EL faculty and lecturers are now almost exclusively hired based on disciplinary and pedagogical needs of the Biology Program.
Challenge 3: *Another issue related to staffing requirements for instruction is the use of contract instructors who are not employed in the teaching faculty tenure track line. This issue received little attention in the materials we received and was not discussed in detail during our meetings.*
Recommendation: *We suggest that mentoring be made available for contract instructors, as needed on a case-by-case basis, to ensure the maintenance of the high quality of the teaching program.*
Response: Lecturers who are hired on multiple-year contracts (the norm in Zoology is 3 or 5 years) are assigned mentors as described in the Zoology Mentoring Guidelines. In addition, the Head of Department meets annually with each Lecturer.

4. Continued support for teaching innovation and infrastructure:
Challenge 1 and Recommendation: *We believe that it would be a great loss to the program if these teaching innovations were to be scaled back and therefore* ***recommend*** *that the Department consider ways to rationalize and solidify support for teaching initiatives.*
Response: We have continued to support the two Biology program Science Education Specialists (one from Zoology and one from Botany) as they are essential to the continued success of the innovations in teaching. Furthermore, a Faculty of Science teaching start-up program was started in 2018, which not only helps to support new faculty in their first teaching assignment but through the involvement of the Science Education Specialists, new faculty are supported in adopting modern, evidence-based teaching practices.

Challenge 2 and Recommendation: Lack of resources to invest in undergraduate teaching as considered a challenge and a recommendation was: *A possibility to consider is whether the many sections within the large first and second year courses could be condensed into larger classes, reducing the number of sections required and freeing up resources. Ensuring continuity of course content and teaching practices across multiple sections appears to work best with the involvement of dedicated course coordinators.*
Response: The suggestion of teaching larger, fewer sections of lower-level courses has been considered previously. In addition to this course of action being severely limited by the lack of large classrooms, our teaching philosophy favours maintaining smaller classes, even though it incurs the cost of increased teaching personnel.

Challenge 3 and Recommendation: *Resources are required for maintenance and renewal of equipment for teaching labs. It was pointed out to the committee that much of the equipment that will be placed into the new teaching facility is quite old and out of date.*
Response: This recommendation was directly addressed by the Dean of Science in conjunction with the move of all Biology Program teaching laboratories to the new Life Sciences Teaching building. All teaching labs were provided with funds to support purchasing new equipment to ensure that the teaching infrastructure matched the modern teaching facility. In addition, the Faculty of Science has an annual academic equipment fund competition and between Botany and Zoology, we submit three

applications a year.

5. Support for Faculty

Challenge 1: *A recurring theme in both the Self-Study 2017 document and meetings with faculty was concern about increasing administrative loads. An issue that overlaps faculty and staff activities concerns budgetary planning and review. Budget transparency issues seem a relatively minor source of concern. However, increased transparency would have at least one key advantage: it would help familiarize faculty with available sources of money that could be tapped for purchase of new equipment, facilitation of teaching efforts, etc.*

Response: While there was no explicit recommendation associated with the identified challenge, Zoology has implemented several measures to increase transparency, not only around budget but also around service loads, teaching, and other aspects. In addition, we are currently revising and updating our onboarding processes to ensure new faculty receive hands-on, helpful, and timely assistance with administrative tasks. We are also currently working to identify ways in which our excellent administrative team can better support faculty.

Challenge 2: *Another issue related to seminars concerns their scheduling/timing: several faculty with young children indicated that it is impossible for them attend late-afternoon seminars owing to family responsibilities.*

Recommendation: *We recommend that this scheduling issue be addressed when the different seminar series are organized.*

Response: All departmental seminars are scheduled to end before 5:00 pm to ensure faculty and trainees with childcare duties can attend.

6. Graduate and Post-doctoral training

Challenge: *An area of concern identified in the self-study and apparent to our eyes is the time to degree completion for graduate students, which was reported as 3.2 years for an MSc and 5.9 years for a PhD. The total duration of graduate training also strikes us as too long.*

Recommendation: *We recommend, first, that the Department continue to identify strategies aimed at reducing time to degree completion for graduate students, and, second, that more effort be invested into preparing students for non-academic jobs*.

Response: Time to completion continues to be a point of discussion in the Department. We refer the readers to the graduate program section of the current self-study for a detailed discussion of the issues and steps taken to reduce the time to completion. For the second recommendation, the department has integrated a series of professional development courses, workshops, and panel discussions targeted explicitly at non-academic jobs. These are held in conjunction with offerings from the Faculty of Graduate and Post-Doctoral Studies to help students prepare for a wide range of careers.

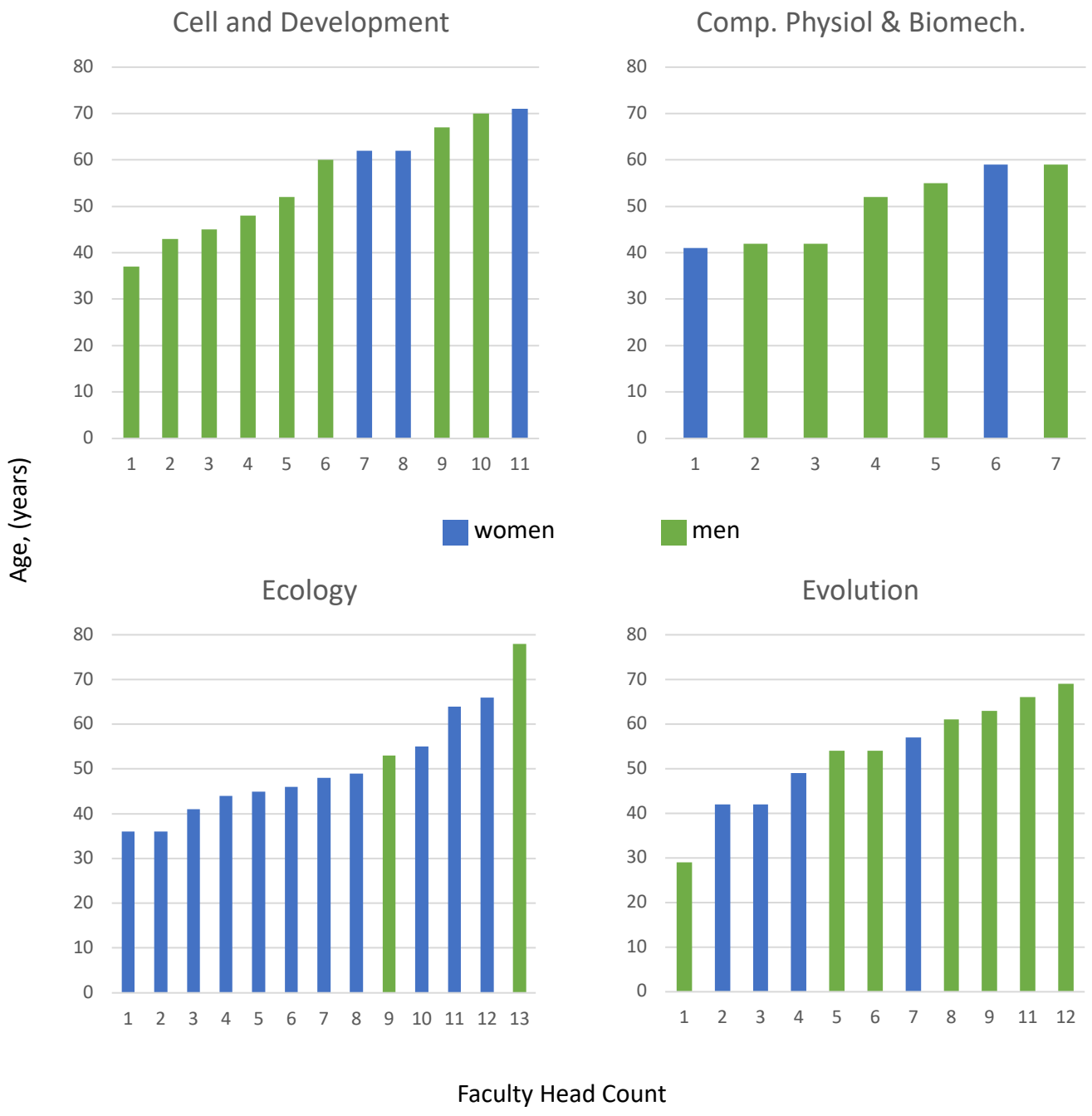
Appendix 3: Department of Zoology tenure track, non-tenure track faculty, and cluster affiliation as of March 2025.

	Cell & Development	Ecology	Evolutionary Biology	Comparative Physiology	Educational Leadership
1	Abraham, Ninan	Angert, Amy	Bruce, Heather	Altshuler, Douglas	Berezowsky, Craig
2	Auld, Vanessa	Aviles, Leticia	Doebeli, Michael	Brauner, Colin	Chen, Liane
3	Gordon, Michael	Benson-Amram, Sarah	Irwin, Darren	Marshall, Katie	Couch, Brett
4	Matsuuchi, Linda	Gaynor, Kaitlyn	King, Kayla	Matthews, Benjamin	Kalas, Pamela
5	Mizumoto, Kota	Germain, Rachel	Leander, Brian	Matthews, Philip	Klenz, Jennifer
6	Pante, Nelly	Harley, Christopher	Leeks, Asher (2025)	Richards, Jeffrey	Lacombe, Agnes
7	Ramer, Matthew	Jankowski, Jill	Mank, Judith	Schulte, Patricia	Leander, Celeste
8	Snutch, Terrance	Kremen, Claire	Otto, Sarah		Lee, Stella
9	Sugioka, Kenji	O'Connor, Mary	Schluter, Dolph		O'Neill, Angela
10	Tetzlaff, Wolfram	Parfrey, Laura	Taylor, Eric		Steinwand, Blaire
11	Wei, Kevin	Pauly, Daniel	Whitlock, Michael		
12		Srivastava, Diane			
13		Tseng, Michelle			
	Total People	11	13	11	7	10
	Total FTE	9.7	9.1	8.6	7.0	6.8

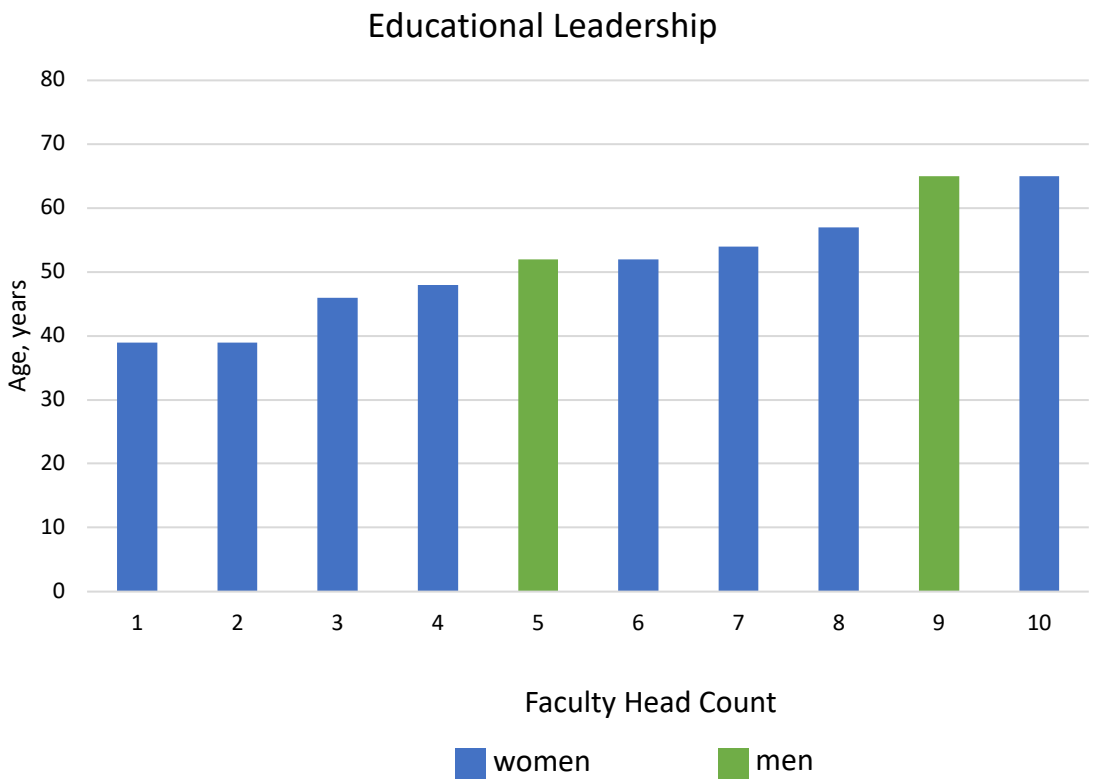
Lecturer
Ballagh, Irene
Blanchard, Tessa
Fung, Charissa
Lam, Vivienne
Moussavi, Maryam
Norman, Lynn
Odendaal, Lizelle
Sun, Chin
Waise, Zaved
Wilson, Rachel
10
8

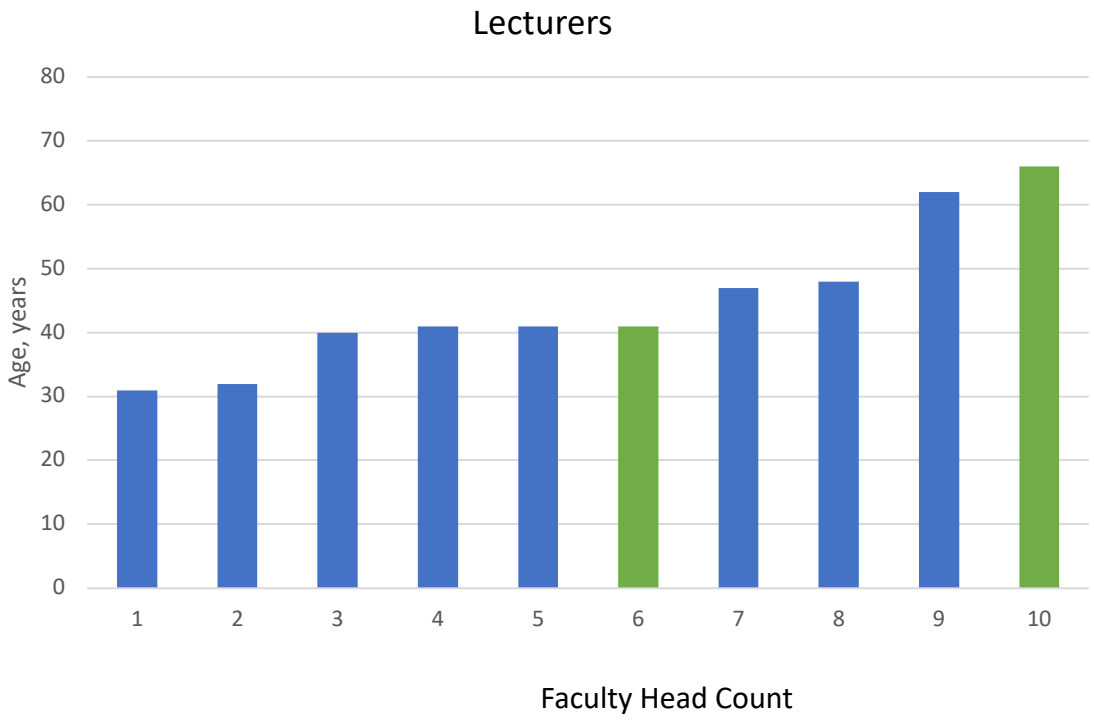
Appendix 4: Age and gender of faculty by cluster and stream (research, EL, and lecturers).

Research Faculty



Teaching Faculty





Appendix 5: Research and teaching facilities.

RESEARCH FACILITIES

The majority of Zoology faculty is currently housed in four separate buildings. In the Research, Scholarly and Profession Activity section, we discuss the benefits of this arrangement in terms of fostering research productivity and creating nodes of expertise around the research clusters that are the foundation of the Department of Zoology. Here we briefly describe the infrastructure associated with each.

Biodiversity Research Centre (BRC)

The Biodiversity Research Centre serves as a vibrant interdisciplinary hub, bringing together over 60 faculty members from ~16 academic units across UBC, with 35 of these faculty members affiliated with the Department of Zoology. The original BRC building, completed in May 2009 at a cost of $41 million through funding from CFI, BCKDF, and private sources, houses 12 Zoology faculty members, 5 joint Zoology/Botany faculty members, and 5 emeritus faculty members, along with their 91 students, staff, and postdoctoral fellows. The facility features modern, open laboratory spaces specifically designed to foster networking and collaborative research. The physical proximity of researchers who previously worked in separate locations has created exceptional opportunities for synthetic and integrative research directions. To clarify administrative relationships, the BRC Director and Department Heads established a Memorandum of Understanding that formalizes expectations and operational structures.

A significant expansion of the BRC is currently under construction, which will add more than 4,400 m^2 of laboratory, office and theory space in a six-story addition to the existing building. This expansion will provide additional space for researchers, Beaty Biodiversity Museum collections, support functions, and meeting areas. The addition is situated east of Fairview Grove, away from Main Mall, with careful landscape design planning to enhance the grove and connect the site's ecology to adjacent natural, cultural, and ecological systems.

Biological Sciences Building, South & West Wings (BioSci)

In March 2011, a major renovation of the West and South wings of the Biological Sciences Building was completed as part of the UBC Renew Strategy, funded by the Government of Canada's stimulus funding Knowledge Infrastructure Program and matched by the Provincial Government. The $61.9 million, nearly ~16,000 m2 project houses state-of-the-art, open-concept laboratories, research spaces, classrooms, offices, and gathering spaces for the Departments of Botany and Zoology. The Biological Sciences Building houses the Zoology administrative office, along with faculty, post-doctoral fellows, and graduate student members of the Integrative and Comparative Physiology group. The renovated space is also home to important core faculties, including the UBC Bioimaging Facility, the Aquatic Animals Research Facility (*InSEAS*), and a new insectarium.

***In*itiative for the *S*tudy of the *E*nvironment and its *A*quatic *S*ystems (*InSEAS*).**

With the completion of the Biological Sciences Building south and west wing renovation, we were able to consolidate aquatic animal research facilities from several separate locations in many different buildings to a single centralized facility located on the bottom floors of the

South and West wings and the central courtyard. This ~2,300 m^2 faculty supports many researchers from several research clusters. InSEAS is currently supported by two full-time aquatic technicians who run the facility, help in designing research systems, and ensure all work on animals is done according to UBC Animal Care Committee and Canadian Council on Animal Care guidelines and standards.

InSEAS houses 13, large recirculating aquaculture systems (RAS), environmental chambers, and specialized laboratories. The facility includes high-density RAS capable of rearing fish at densities up to 100 kg/m^3 and low-density RAS for various research needs. Each RAS can precisely control water parameters, including oxygen, temperature, salinity, CO_2, ammonia, and pH. All systems are continuously monitored and centrally recorded. An outdoor courtyard contains approximately 8 tanks of various sizes with flow-through freshwater, as well as three environmental chambers where tanks can be maintained at controlled temperatures between 5-35°C with customizable photoperiods.

Facility for the Study of Insect Adaptability and Physiology (FSIAP)

FSIAP opened in 2024. Led by Drs. Matthews, Matthews, and Marshall, the FSIAP was designed to meet Arthropod Containment Level 2 (ACL-2) and Plant Pest Containment Level 1 (PPC-1) guidelines and currently houses a variety of economically, scientifically, and medically important insects, including spruce budworm, cockroaches, and two species of mosquito. The facility is just over 93 m^2 and consists of three walk-in climate-controlled chambers, specialized equipment to rear blood-feeding arthropods, the capacity to neutralize and dispose of insect waste, and ample bench space to accommodate the research programs of three active research labs (with spare capacity for additional recruitment and expansion of scientific goals). The initial scientific goals of the FSIAP are to study the impacts of a changing climate on insect physiology, enabling us to predict, control, and manage the effects of their spread.

Avian Flight Behaviour Lab

Biological Sciences 4033 is animal suite for housing birds and studying avian flight behaviour. Two classes of birds are housed, facility bred birds such as zebra finches and pigeons, and wild caught birds, currently hummingbirds. These populations are kept separate because wild caught birds are often released following non-invasive procedures. The facility-bred birds are housed in BioSci 4033A and their sink, cage wash, and storage are located in the main hallway. The wild caught birds are housed in 4033C, which contains separate sink and storage. Room 4033B is a larger room for behavioural research. It has blackout blinds and ceiling mounts for camera, lights, and other infrastructure. These facilities are run entirely by Dr. Altshuler's research lab.

International Collaboration on Repair Discoveries (ICORD)

ICORD is a world-leading health research centre focused on spinal cord injury at Vancouver General Hospital in the Blusson Spinal Cord Centre. The facility has offices and individual research labs, plus access to many shared facilities, including human physiology and rehabilitation labs. Zoology faculty at ICORD (Ramer and Tetzlaff) share access to a microscopy suite with modern confocal and electron microscopes, tissue culture rooms, histology labs, as well as access to shared freezer rooms, autoclaves, ventilation hoods and dishwashers. ICORD

also has numerous seminar and meetings rooms to foster collaboration. The facility includes a vivarium for spinal cord injury experiments in rodents (8,500 sqft). This state-of-the-art conventional facility has 2 rat and 4 mouse operation suites, a bio-hazard operational suite for the application of viral vectors, a dozen behavior, holding and breeding rooms with telemetry and test devices to assess locomotion and gait, reaching and forelimb usage, as well as a cage wash area, office space and kitchen.

Life Sciences Institute (LSI)

The Life Sciences Institute (LSI) opened in 2005 and is a central interdisciplinary hub for the life and biomedical sciences. It is the largest research unit at UBC and the Faculties of Medicine and Science jointly govern it. The LSI is housed in the Life Sciences Centre, the largest UBC campus building, spanning 52,165 m^2. This $125 million facility was built to accommodate the medical educational program and the LSI, with the LSI accounting for 25,000 m^2 of the overall space. The LSI houses over 80 principal investigators and their research labs from 11 different departments across three faculties (Medicine, Science, and Dentistry). Approximately 600 trainees and research staff conduct research within the LSI. The vast majority of the members of the Cell and Development research cluster have their labs and offices in the LSI.

The LSI was created to provide a platform where researchers could work in an environment organized by scientific themes rather than traditional departmental boundaries. Researchers focus on fundamental molecular, biochemical, genetic/genomic, cell biology, developmental biology, and immunology research, including biomedical applications. The institute is structured around research groups containing labs from various departments working on similar research topics. This organization has successfully facilitated interactions among investigators, trainees, and staff while providing opportunities to share infrastructure that single departments could not support independently. The LSI offers extensive research infrastructure including the *Drosophila* facility, Flow Cytometry Facility, LSI Imaging with access to multiple confocal microscopes, electron microscopes, and Super-Resolution microscopes. The LSI also hosts numerous seminar series and fosters connections across several graduate programs including the Cell and Developmental Biology Graduate Program, the Neurosciences

Graduate Program, and the Genome Sciences Graduate Program. These programs, along with various annual retreats and multi-university gatherings, enhance the training environment for postdoctoral fellows, graduate and undergraduate students.

Experimental Ponds

This facility, funded by CFI, BCKDF, and UBC, was completed in 2008. It replaced an earlier series of 13 ponds constructed in the early 1990s. The facility includes 20 ponds, each 25 m x 15 m with a shallow littoral area at one end and a 6 m deep end. The ponds have been seeded with plants and invertebrates from Paxton Lake, an 11-ha lake containing a benthic-limnetic stickleback species pair. Apart from their construction and initialization, the ponds are un-manipulated environments. These posts are used primarily to carry out experiments on natural selection, evolution, and genetic mapping of natural variation. The facility also contains a field of cattle tanks for highly replicated ecological experiments on a smaller scale.

Mechanical Workshop

The mechanical workshop is home to one mechanical engineering technician. Based in the facility are the tools, equipment, and instruments used in the design, fabrication and repair of both teaching and research equipment. The workshop operates on a cost recovery basis for parts and labour, but the department does subsidize the labour for teaching related work. The workshop space is jointly shared with the Botany Department.

Beaty Biodiversity Museum (BBM)

The Beaty Biodiversity Museum is a research, teaching, and public outreach unit affiliated with the Zoology and Botany departments. At its core are >2 million specimens of animals, plants, and fungi collected over the last century, representing a documentation of past research and a resource for future research. The museum's collections, formerly hidden in various buildings, were moved to a new publicly accessible facility in 2009, and opened to the public along with exhibits and programs in 2010. The Beaty Biodiversity Museum hosts over 35,000 visitors per year, including over 5,000 UBC undergraduates who use the museum for various class activities.
.
The BBM has cabinetry custom-designed both for conservation of specimens and for esthetics, as it is situated in a public space with exhibits. The four zoological collections are the Cowan Tetrapod Collection (ca. 43,000 specimens), the Fish Collection (853,000 specimens), the Spencer Entomological Collection (650,000 specimens), and the Marine Invertebrate Collection (c.a. 500,000 specimens). Support staff are two Assistant Curators (Entomology, Tetrapods), one Curatorial Assistant (Tetrapod and cross-collections), and one Research Technician (Entomology), and students hired or volunteering on an *ad hoc* basis. Consolidating the collections into one museum along with the botanical collections has enhanced communication and joint efforts among the curatorial staff.

Bamfield Marine Sciences Centre (BMSC)

The Bamfield Marine Sciences Centre is a world-class teaching and research facility located on the outer west coast of Vancouver Island, Canada. The BMSC supports diverse coastal and marine research opportunities and is recognized as among the very best research and training facilities in the world. Situated within the traditional territory of the Huuayaht First Nation in Barkley Sound, and adjacent the Pacific Rim National Park Reserve, BMSC offers unparalleled access to a wide array of environments, including unique coastal, marine and rainforest habitats and exceptional species diversity. The property consists of 75 hectares with approximately 3.0 kilometers of waterfront at the confluence of Grappler and Bamfield Inlets. Facilities include well-serviced laboratories with an excellent seawater system, a 12-metre research vessel, excellent scuba-support facilities, stores, a museum, lecture rooms, teaching laboratories, and shop facilities. On-site food and housing services are available year-round. The station library includes more than 6,000 volumes, 70 current journals, and a 30,000-piece reprint collection.

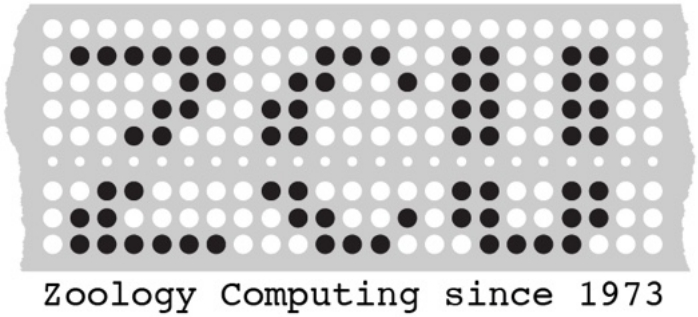
BMSC is owned and operated by the non-profit Western Canadian Universities Marine Sciences Society (WCUMSS) whose members are Simon Fraser University, the University of Alberta, the University of British Columbia, the University of Calgary, and the University of Victoria. The Society has a mandate to:

- Provide world-class research infrastructure for marine and coastal scientists from the member universities and from other Canadian and International institutes
- Offer senior undergraduate and graduate courses and programs in marine and coastal sciences
- Provide training for graduate students, post-doctoral fellows and technicians in practical aspects of marine and coastal research
- Offer in-residence programs in marine biology and general science to schools, colleges, First Nations and other public groups.

UBC Bioimaging Facility (BIF)

BIF is administered through Botany in collaboration with Zoology provides microscopy infrastructure and expertise to researchers from 25 UBC departments, Simon Fraser University, local hospitals and industry. Although BIF provides critical confocal and electron microscopy access and services, maintaining a stable budget continues to be a challenge. The facility employs three technicians, whose salaries are financed by user fees, and a facility manager co-funded by the Departments of Botany and Zoology. Recently, BIF was designed as UBC core facility with the Vice President Research and Innovation, therefore contributing to the financial operation. Furthermore, BIF is undergoing a renewal of its microscopes, which is an initiative funded by CFI.

Zoology Computing Unit (ZCU)



The ZCU is responsible for building and maintaining the computing infrastructure needed for the department's research, teaching and administration functions. Services offered by the ZCU include: fast and efficient desktop support, IT security, printing (including posters), file serving, automatic backups for personal computers, flexible web hosting, shared equipment/software, equipment loan, consulting/advice, a computer cluster for large RAM-requiring jobs (usually genomics) and a set of servers for simulations. In the past, the Gradlab has been an important core facility, which needs renewal. An NSERC-RTI has been submitted for funding to upgrate the

infrastructure in the Gradlab. Other core labs are also available and managed by the ZCU staff. There are three ZCU staff including Nick Koubrak (Systems Administrator), Jenny Kao (Systems Coordinator), and Simon Wilson (Systems Analyst). The server room, Gradlab, and staff offices are in the BRC, and our storage room is in the Biological Sciences Building.

TEACHING FACILITIES
Undergraduate Life Sciences Teaching Laboratories

The Department of Zoology and the Biology Program now benefits from modern, state-of-the-art teaching facilities following a major renovation and expansion of the Biological Sciences Building to accommodate the Undergraduate Life Sciences Teaching Laboratories. This $91-million project substantially renovated over 10,000 m^2 of existing facilities and added ~9,100 m^2 of new teaching space. This project was completed in 2019 and addressed recommendations from previous departmental reviews identifying the urgent need for new teaching spaces and infrastructure.

The project consolidated all life and biological sciences teaching labs on campus into one integrated complex, serving over 2,600 students and faculty across multiple disciplines, including Zoology, Botany, Microbiology & Immunology, Cellular & Physiological Sciences, and Biochemistry & Molecular Biology. The new facilities feature well-equipped and spacious teaching laboratories, modern classrooms, and collaborative study areas that encourage student interaction and hands-on learning. The construction of a new east wing in the complex created an outdoor quadrangle that serves as a living laboratory for social, educational, and research activities.

Funding for this project was provided through joint federal-provincial sources *via* the Post-Secondary Institutions Strategic Investment Fund, with $32.5 million from the Government of Canada, $11.8 million from the Government of British Columbia, and $47.1 million from UBC. The new facilities have significantly enhanced the department's capacity to deliver high-quality education in the life sciences, preparing students for careers in genetics, healthcare, conservation, and ecology.

Appendix 6: International and national rankings of UBC in comparison with other universities**.**

International Ranking of Universities

Times Higher Education, 2024
(https://www.timeshighereducation.com/world-university-rankings/2024/world-ranking)

1. University of Oxford
2. Stanford University
3. Massachusetts Institute of Technology
4. Harvard University
5. University of Cambridge
6. Princeton University
7. California Institute of Technology
8. Imperial College London
9. University of California, Berkeley
10. Yale University
21. University of Toronto
41. The University of British Columbia
49. McGill University

Shanghai Ranking of World Universities, 2024
(https://www.shanghairanking.com/rankings/arwu/2024)

1. Harvard University
2. Stanford University
3. Massachusetts Institute of Technology
4. University of Cambridge
5. University of California, Berkeley
6. University of Oxford
7. Princeton University
8/9. California Institute of Technology
8/9. Columbia University
10. University of Chicago
26. University of Toronto
47. The University of British Columbia
74. McGill University

QS World University Rankings
(https://www.topuniversities.com/world-university-rankings)

1. Massachusetts Institute of Technology
2. Imperial College London
3. University of Oxford
4. Harvard University
5. University of Cambridge
6. Stanford University
7. ETH Zurich
8. National University of Singapore
9. University College London
10. California Institute of Technology
12. University of California, Berkeley
25. University of Toronto
29. McGill University
38. The University of British Columbia

International Ranking of Universities, 2024 - Biological Sciences
QS World University Rankings (National ranking)
(https://www.topuniversities.com/university-subject-rankings/biological-sciences)

1. Harvard University
2. Massachusetts Institute of Technology
3. Stanford University
4. University of Oxford
5. University of Cambridge
6. ETH Zurich
7. University College London
8. Imperial College London
9. Yale University
10. University of California, San Diego
11. University of California Berkley
15. Johns Hopkins University

22 (1). University of Toronto
25. University of Washington
35 (2). The University of British Columbia
43 (3). McGill University
122 (4). University of Alberta

International Ranking of Universities, 2024 - Plant and Animal Science

US News – Education Clarivate, Web of Science. (National ranking)

https://www.usnews.com/education/best-global-universities/plant-animal-science

1. Wageningen University & Research Centre
2. University of California, Davis
3. China Agricultural University
4. Cornell University
5. Nanjing Agricultural University
6. University of Florida
7. Zhejiang University
8. University of Chinese Academy of Science
9. Huazhong Agricultural University
10. Ghent University
11. University of California, Berkley
12. University of Western Australia
13. Swedish University of Agricultural Sciences
14 **(1). The University of British Columbia**
15 University of Copenhagen

International Ranking of Universities, 2024 - Cell Biology

US News – Education Clarivate, Web of Science

https://www.usnews.com/education/best-global-universities/canada/cell-biology

1. Harvard University
2. Massachusetts Institute of Technology
3. Stanford University
4. University of California, San Francisco
5. Icahn School of Medicine at Mount Sinai
6. Washington University
7. University of California, San Diego
8. University of Cambridge
9. Cornell University
10. University of Oxford

23 (1). University of Toronto
67 (2). The University of British Columbia
71 (3). McGill University

Internation Ranking of Universities, 2024 - Ecology
US News – Education Clarivate, Web of Science
https://www.usnews.com/education/best-global-universities/ecology
(national ranking)

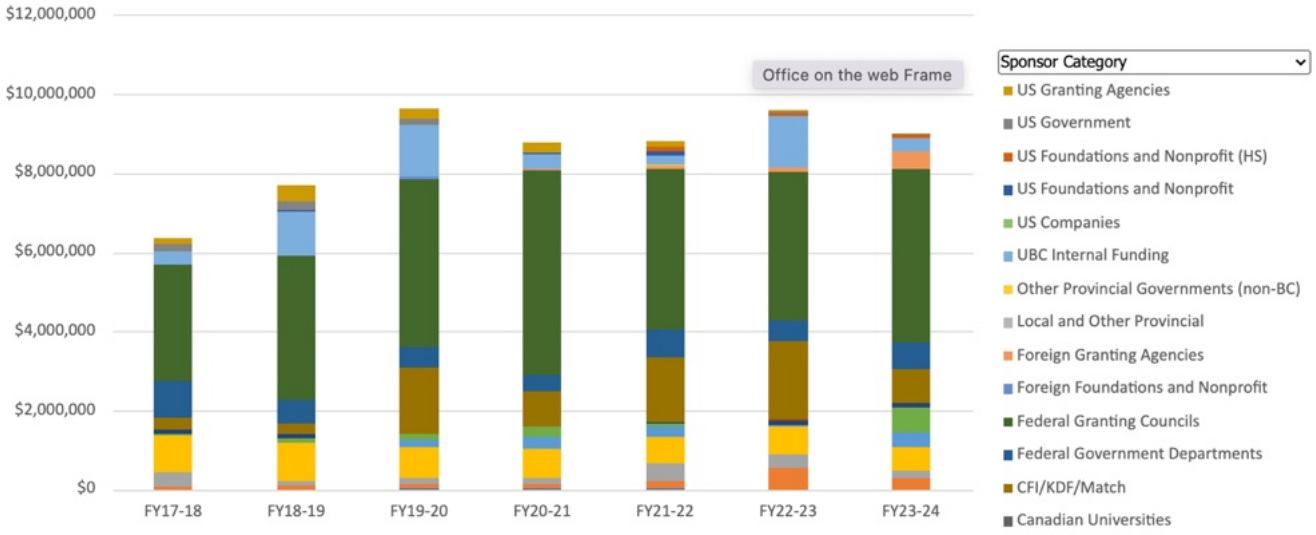
1. Peking University
2. Universite de Montpellier
3. Wageningen University & Research
4. University of Oxford
5. Martin Luther University Halle Wittenberg
6. University of Queensland
7. University of California, Berkely
8. ETH Zurich
9. University of Gottingen
10. University of Minnesota Twin Cities
11. University of Cambridge

13 (1). The University of British Columbia

84 (2). McGill University
86 (3). University of Toronto
121 (4). University of Alberta

Please note that evolutionary biology and integrative and/or comparative physiology are not subject areas covered by these online resources.

Appendix 7. Research funding to Zoology faculty from major sponsors.



Appendix 8. Research funding held by each principal investigator.

Investigator	Type	Sponsor	FY17-18	FY18-19	FY19-20	FY20-21	FY21-22	FY22-23	FY23-24	Average
Altshuler, Douglas	**External**	NSERC	187,151	41,000	41,000	197,520	55,000	55,000	55,000	
		CIHR		75,000	75,000	214,389	232,139	211,225	126,225	
		Michael Smith Health Research BC							37,625	
		United States Air Force Office of Scientific Research		205,729	139,371	8,582				
		US Air Force Office of Scientific Research	198,960							
		Total External	**386,111**	**321,729**	**255,371**	**420,491**	**287,139**	**266,225**	**218,850**	**307,988**
	UBC	Centre for Brain Health						30,000		
		Killam Faculty Research Fellowship	18,000							
		Peter Wall Institute for Advanced Studies	5,000							
		Total Internal	**23,000**					**30,000**		
		GRAND TOTAL	**409,111**	**321,729**	**255,371**	**420,491**	**287,139**	**296,225**	**218,850**	**315,559**
Auld, Vanessa J.	**External**	CIHR	142,875	143,820	143,820	158,820	168,820	143,820	86,828	
		NSERC	47,000	47,000	42,000	48,720	42,000	42,000	42,000	
		Total External	**189,875**	**190,820**	**185,820**	**207,540**	**210,820**	**185,820**	**128,828**	**185,646**
	UBC	Faculty of Science		70,000	70,000	70,000	70,000	70,000		
		VP Research & Innovation					5,000			
		TOTAL	**189,875**	**260,820**	**255,820**	**277,540**	**285,820**	**255,820**	**128,828**	**236,360**
Aviles, Leticia	**External**	NSERC		50,000	40,000	46,400	40,000	40,000	40,000	
		The Animal Behavior Society							2,695	
		Total External		**50,000**	**40,000**	**46,400**	**40,000**	**40,000**	**42,695**	**43,183**
	UBC	Faculty of Forestry					2,500			
		Faculty of Science			25,000					
		TOTAL		**50,000**	**65,000**	**46,400**	**42,500**	**40,000**	**42,695**	**47,766**
Brauner, Colin	**External**	NSERC	90,000	138,000	199,000	162,490	65,000	65,000	84,000	
		BC Ministry of Environment & Climate Change Strategy			25,000	12,000				
		BC Ministry of Land, Water and Resource Stewardship						280,000		
		Cermaq Canada					12,500			
		Fisheries and Oceans Canada	7,000						60,329	
		Genome British Columbia					192,902	136,052	81,346	
		Genome Canada					28,276	28,276	28,276	
		Grieg Seafood BC Ltd.					12,500			
		Innovation, Science and Economic Development Canada					15,000			
		MITACS Inc.						36,667	100,000	
		Province of British Columbia					15,000			
		Research Council of Norway			8,823	6,650	24,893	-626	26,034	
		Total External	**97,000**	**138,000**	**232,823**	**181,140**	**366,071**	**545,368**	**379,985**	**277,198**
	UBC	Faculty of Land and Food Systems		10,000						
		VP Research & Innovation	49,500		48,800			49,349		
		TOTAL	**146,500**	**148,000**	**281,623**	**181,140**	**366,071**	**594,717**	**379,985**	**299,720**
Doebeli, Michael W.	**External**	NSERC	79,000	95,000	95,000	95,000	95,000	95,000	95,000	
		TOTAL	**79,000**	**95,000**	**95,000**	**95,000**	**95,000**	**95,000**	**95,000**	**92,714**
Gaynor, Kaitlyn	**External**	NSERC						64,500	210,000	**137,250**
	Infrastructure	BCKDF							150,000	
		CFI							150,000	
	UBC	Department of Botany						25,000		
		Department of Zoology						125,000		
		Faculty of Science						50,000		
		VP Research & Innovation							5,000	
		TOTAL						**264,500**	**515,000**	**389,750**

Germain, Rachel	**External**	American Society of Naturalists							2,651	
		NSERC			50,500	44,080	38,000	38,000	38,000	
		Total External			**50,500**	**44,080**	**38,000**	**38,000**	**40,651**	**42,246**
	Infrastructure	BCKDF				125,000				
		CFI				125,000		8,611		
	UBC	Department of Zoology		75,000		5,000				
		Faculty of Science		75,000						
		Unrestricted Research Funds							15,000	
		VP Research & Innovation					3,800			
		TOTAL		**150,000**	**50,500**	**299,080**	**41,800**	**46,611**	**55,651**	**107,274**
Gordon, Michael	**External**	CIHR	201,030	207,172	129,676	217,313	49,596	80,983	82,483	
		NSERC	104,000	104,000	64,000	74,240	64,000	64,000	64,000	
		Brain Canada	2,745							
		Michael Smith Foundation for Health Research	75,000	90,000	90,000	22,500				
		Michael Smith Health Research BC							37,625	
		Total External	**382,775**	**401,172**	**283,676**	**314,053**	**113,596**	**144,983**	**184,108**	**260,623**
	UBC	VP Research & Innovation				9,100				
		TOTAL	**382,775**	**401,172**	**283,676**	**323,153**	**113,596**	**144,983**	**184,108**	**261,923**
Harley, Christopher	**External**	NSERC	89,000	105,046	52,000	60,320	52,000	47,000	426,413	
		Innovation, Science and Economic Development Canada	7,500		7,333	14,917	11,250			
		Networks of Centres of Excellence	14,160	20,425						
		MITACS Inc.					15,000			
		National Geographic Society			11,839					
		Ocean Wise Conservation Association			12,000	13,500	22,500			
		Phycological Society of America							1,395	
		Province of British Columbia	7,500		7,333	14,917	11,250			
		Tula Foundation	15,000	129,500	162,000	136,500	40,500	16,250	213,087	
		Total External	**133,160**	**254,971**	**252,505**	**240,153**	**152,500**	**63,250**	**640,895**	**248,205**
	UBC	Faculty of Graduate and Postdoctoral Studies				6,000				
		TOTAL	**133,160**	**254,971**	**252,505**	**246,153**	**152,500**	**63,250**	**640,895**	**249,062**
Irwin, Darren	**External**	NSERC	112,000	112,000	112,000	83,520	72,000	72,000	84,000	
		American Ornithological Society					4,244			
		BC Ministry of Land, Water and Resource Stewardship							12,000	
		Colorado Field Ornithologists				2,061				
		Genome British Columbia	77,727							
		Ministry of Water, Land, and Resource Stewardship							12,500	
		Society for the Study of Evolution			3,153					
		Society of Canadian Ornithologists			2,000					
		The Linnean Society of London					1,380	503		
		TOTAL/Total External	**189,727**	**112,000**	**117,153**	**85,581**	**77,624**	**72,503**	**108,500**	**109,013**
Jankowski, Jill	**External**	NSERC	25,000		47,000	54,520	47,000	47,000	47,000	
		American Ornithological Society							3,293	
		Canadian Institute of Ecology and Evolution (ciee)						11,830		
		New Frontiers in Research Fund						23,125		
		Total External	**25,000**	**0**	**47,000**	**54,520**	**47,000**	**81,955**	**50,293**	
	Infrastructure	CFI	54,249	11,990	5,275	6,500		3,225	-15,000	
	UBC	Faculty of Forestry					2,500			
		Faculty of Science						25,000		
		TOTAL	**79,249**	**11,990**	**52,275**	**61,020**	**49,500**	**110,180**	**35,293**	**57,073**
Kremen, Claire	**Infrastructure**	BCKDF					400,000			

		CFI					400,000	81,061	15,991	
	UBC	Centre for Biodiversity Research			25,000					
		Department of Zoology			25,000					
		Faculty of Science			125,000					
		Institute for Resources, Environment and Sustainability			25,000					
		TOTAL			**200,000**		**800,000**	**81,061**	**15,991**	**274,263**
Maddison, Wayne P.	**External**	NSERC	42,000	55,000	55,000	55,000	55,000	55,000	55,000	
		Total External	**42,000**	**55,000**	**55,000**	**55,000**	**55,000**	**55,000**	**55,000**	**53,143**
	UBC	Department of Zoology	14,000		14,000	7,000	7,000	7,000	7,000	
		TOTAL	**156,000**	**155,000**	**169,000**	**162,000**	**162,000**	**162,000**	**162,000**	**161,143**
Mank, Judith	**External**	NSERC			70,000	125,000	55,000	55,000	55,000	
		Canada 150 Research Chairs		750,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	
		Total External		**750,000**	**1,070,000**	**1,125,000**	**1,055,000**	**1,055,000**	**1,055,000**	**1,018,333**
	Intrastructure	BCKDF			471,228					
		CFI			541,469	43,038	0	101,120	941	
	UBC	Department of Zoology		125,000						
		Faculty of Science		125,000						
		VP Research & Innovation			5,000	5,000				
		TOTAL		**1,000,000**	**2,087,697**	**1,173,038**	**1,055,000**	**1,156,120**	**1,055,941**	**1,254,633**
Marshall, Katie	**External**	NSERC			40,500	32,480	28,000	57,167	28,000	
		MITACS Inc.						30,000	3,000	
		National Science Foundation (US)				154,136	48,781	956		
		Natural Resources Canada							44,850	
		Total External			**40,500**	**186,616**	**76,781**	**88,123**	**75,850**	**93,574**
	Infrastructure	BCKDF			125,000					
		CFI			154,170	4,709		34,525	6,811	
	UBC	Department of Zoology		100,000						
		Faculty of Science		100,000						
		VP Research & Innovation						5,000		
		TOTAL		**200,000**	**319,670**	**191,326**	**76,781**	**127,648**	**82,661**	**166,348**
Matsuuchi, Linda		Natural Sciences and Engineering Research Council of Canada (NSERC)			32,000	37,120	32,000	32,000	32,000	
		TOTAL/Total External			**32,000**	**37,120**	**32,000**	**32,000**	**32,000**	**33,024**
Matthews, Benjamin	**External**	CIHR						39,887	39,887	
		NSERC				67,020	47,000	70,333	92,000	
		Alfred P. Sloan Foundation (US)					92,433			
		Human Frontier Science Program					52,716	94,014	426,525	
		Michael Smith Foundation for Health Research				28,875				
		Michael Smith Health Research BC					145,875	111,542	25,417	
		Total External				**95,895**	**338,024**	**315,776**	**583,828**	**333,381**
	Infrastructure	BCKDF				192,849				
		CFI				192,850	57,855	116,398	73,862	
	UBC	Department of Zoology			220,000					
		Faculty of Science			220,000					
		Unrestricted Research Funds							68,742	
		VP Research & Innovation						5,000	5,000	
		TOTAL			**440,000**	**481,594**	**395,879**	**437,174**	**731,432**	**497,216**
Matthews, Philip	**External**	NSERC	39,000	39,000		86,400	40,000	40,000	40,000	47,400
		Total External	**39,000**	**39,000**	**0**	**86,400**	**40,000**	**40,000**	**40,000**	**47,400**
	Infrastructure	BCKDF						781,055		
		CFI	-4,023	20,700	-8,170	11,370	10,111	781,055	103,340	

	UBC	Department of Zoology						253,742		
		Faculty of Science			22,500					
		Killam Faculty Research Fellowship						18,000		
		TOTAL	**34,977**	**59,700**	**14,330**	**97,770**	**50,111**	**1,873,852**	**143,340**	**324,869**
Mizumoto, Kota	**External**	CIHR	111,770	118,344	131,494	245,208	32,874	71,910	268,110	
		NSERC	35,000	35,000	35,000	40,600	36,000	36,000	36,000	
		Michael Smith Foundation for Health Research		15,000	33,750	15,000				
		Michael Smith Health Research BC					15,000	15,000		
		Total External	**146,770**	**168,344**	**200,244**	**300,808**	**83,874**	**122,910**	**304,110**	**189,580**
	Infrastructure	CFI	37,500							
	UBC	Department of Zoology			75,000	75,000	75,000	75,000	75,000	
		Faculty of Science			22,500					
		TOTAL	**284,270**	**288,344**	**412,744**	**475,808**	**258,874**	**297,910**	**479,110**	**356,723**
O'Connor, Mary	**External**	NSERC	52,000	95,000	95,000	318,800	270,000	55,000	86,167	
		BC Ministry of Environment & Climate Change Strategy						24,990	54,500	
		City of Surrey			5,000					
		Crown-Indigenous Relations and Northern Affairs						94,530		
		Ducks Unlimited Canada					19,000			
		Eeyou Marine Region Wildlife Board						20,000		
		Fisheries and Oceans Canada			127,985	30,400	41,170			
		Innovation, Science and Economic Development Canada		3,750	3,750	3,000	15,000			
		MITACS Inc.							6,000	
		National Institutes of Health				86,377	90,960	9,514		
		Niskamoon Corporation			147,180	305,821	77,668	20,000	263,557	
		Province of British Columbia		3,750	3,750					
		Simons Foundation					114,928	108,000	120,741	
		Tula Foundation		7,500	7,500	105,500	58,000			
		Vancouver Foundation	75,000	75,000						
		Vancouver Fraser Port Authority				15,000				
		Wildlife Habitat Canada						25,000		
		Worley Canada Services Ltd.			4,956		173,530	20,227	103,432	
		Total External	**127,000**	**185,000**	**395,121**	**864,899**	**860,256**	**377,261**	**634,396**	**491,990**
	Infrastructure	BCKDF		100,000						
		CFI	2,636	106,786		42,463	13,122	1,667	7,808	
	UBC	Department of Zoology		13,551						
		Faculty of Science						30,000	30,000	
		Killam Faculty Research Fellowship	18,000							
		TOTAL	**147,636**	**405,337**	**395,121**	**907,362**	**873,378**	**408,928**	**672,204**	**544,281**
Otto, Sarah P.	**External**	CIHR							10,000	
		NSERC	162,000	92,000	136,167	130,720	273,750	95,000	191,667	
		1Qbit			15,000	15,000				
		Apex Resource Management Solutions Ltd.				3,750				
		ECO Canada						25,000		
		France-Canada Research Fund				15,000				
		Innovation, Science and Economic Development Canada		3,000	7,500	13,125				
		Province of British Columbia		3,000	7,500	13,125				
		Total External	**162,000**	**98,000**	**166,167**	**190,720**	**273,750**	**120,000**	**201,667**	**173,186**
	UBC	Peter Wall Institute for Advanced Studies		30,000						
		Strategic Excellence Fund	20,000	20,000	20,000	20,000				
		VP Research & Innovation					5,000	5,000		

		TOTAL	**382,000**	**348,000**	**386,167**	**410,720**	**478,750**	**325,000**	**335,000**	**380,805**
Pante, Nelly		NSERC	71,000	96,000	71,000	82,360	71,000	71,000		
		TOTAL	**71,000**	**96,000**	**71,000**	**82,360**	**71,000**	**71,000**		**77,060**
Richards, Jeffrey	**External**	NSERC	57,000	57,000	57,000	105,000	105,000	105,000	65,000	
		Fisheries and Oceans Canada				335,837	551,692	379,477	562,484	
		Innovation, Science and Economic Development Canada		3,750	3,750	3,000				
		Ocean Wise Conservation Association		7,500	7,500					
		Province of British Columbia		3,750	3,750					
		Total External	**57,000**	**72,000**	**72,000**	**443,837**	**656,692**	**484,477**	**627,484**	**344,784**
	Infrastructure	CFI		7,520	280	4,200				
	UBC	Dean of Science							60,000	
		TOTAL	**57,000**	**79,520**	**72,280**	**448,037**	**656,692**	**484,477**	**687,484**	**355,070**
Schluter, Dolph	**External**	NSERC	202,000	202,000	62,000	71,920	95,000	95,000	95,000	
		American Society of Naturalists		2,632						
		European Commission		11,207	48,131					
		Fisheries and Oceans Canada		9,500		9,500				
		Genome British Columbia	244,453			90				
		Innovation, Science and Economic Development Canada			3,000					
		Province of British Columbia			3,000					
		Society for the Study of Evolution		3,165						
		Total External	**446,453**	**228,504**	**116,131**	**81,510**	**95,000**	**95,000**	**95,000**	**165,371**
	Infrastructure	CFI	34,386							
	UBC	Academic Excellence Fund				120,000	20,000	20,000	20,000	
		Department of Zoology	36,000	10,000	10,000	10,000				
		Faculty of Science	10,000	10,000	10,000	10,000				
		VP Research & Innovation	38,786							
		TOTAL	**765,625**	**448,504**	**336,131**	**421,510**	**215,000**	**115,000**	**115,000**	**345,253**
Schulte, Patricia M.	**External**	NSERC	90,000	90,000	90,000	90,000	90,000	125,690	90,000	
		California Department of Water Resources						15,600	-5,265	
		Fisheries and Oceans Canada		9,500	9,500					
		Genome British Columbia							245,126	
		Genome Canada	938,986	567,203	379,708	-10,736	35,399	-4,013		
		Total External	**1,028,986**	**666,703**	**479,208**	**79,264**	**125,399**	**137,277**	**329,861**	**406,671**
	UBC	Department of Zoology	5,000	5,000	5,000	5,000	3,750	15,000	15,000	
		Faculty of Land and Food Systems	5,000	5,000	5,000	5,000				
		Faculty of Science	5,000	5,000	5,000	5,000				
		TOTAL	**1,043,986**	**681,703**	**494,208**	**94,264**	**179,149**	**352,277**	**544,861**	**484,350**
Srivastava, Diane S.	**External**	NSERC	62,000	62,000	225,560	71,920	62,000	65,000	65,000	
		Innovation, Science and Economic Development Canada			3,000					
		MITACS Inc.						6,000		
		Province of British Columbia			3,000					
		Total External	**62,000**	**62,000**	**231,560**	**71,920**	**62,000**	**71,000**	**65,000**	**89,354**
	UBC	Peter Wall Institute for Advanced Studies						10,000		
		Strategic Excellence Fund					40,000	20,000	20,000	
		TOTAL	**62,000**	**62,000**	**231,560**	**71,920**	**102,000**	**101,000**	**85,000**	**102,211**
Sugioka, Kenji	**External**	CIHR				164,734	149,175	149,175	149,175	
		NSERC			42,500	34,800	30,000	30,000	30,000	
		Michael Smith Foundation for Health Research				67,500				
		Michael Smith Health Research BC					90,000	90,000	90,000	
		New Frontiers in Research Fund			125,000	104,425				

		Total External			**167,500**	**371,459**	**269,175**	**269,175**	**269,175**	**269,297**
	Infrastructure	BCKDF			175,000					
		CFI			175,000	158,425	3,750	11,968	1,250	
	UBC	Department of Zoology		150,000						
		Faculty of Science		150,000	22,500					
		TOTAL		**300,000**	**540,000**	**529,884**	**272,925**	**281,143**	**270,425**	**365,729**
Taylor, Eric B.	**External**	NSERC		62,230	62,230	72,187	62,230	62,230	62,230	
		BC Conservation Foundation						20,001	8,811	
		BCHydro and Power Authority		81,667	81,667	81,667	122,475	209,956	209,956	
		MCMinistry of Environment & Climate Change Strategy		11,660			25,000	29,000		
		BC Ministry of Forests, Lands, Natural Resource Operations					5,000			
		Fisheries and Oceans Canada					9,588	7,459		
		Freshwater Fisheries Society of British Columbia	15,000							
		Government of the Yukon	5,000	5,000						
		BC Ministry of Forests, Lands, Natural Resource Operations	31,250							
		Palmer Environmental Consulting Group							21,190	
		Pisces Environmental Consulting Services Ltd	9,100							
		Total External	**60,350**	**160,557**	**143,897**	**153,853**	**224,292**	**328,646**	**302,187**	**196,254**
	UBC	Faculty of Science	18,000	18,000	18,000					
		TOTAL	**78,350**	**178,557**	**161,897**	**153,853**	**224,292**	**328,646**	**302,187**	**203,969**
Wei, Kevin	**External**	NSERC							57,500	**57,500**
	Infrastructure	BCKDF							180,000	
		CFI							180,000	
	UBC	Department of Zoology						460,000		
		TOTAL						**460,000**	**417,500**	**438,750**
Whitlock, Michael C.		NSERC	52,000	52,000	52,000	52,000	52,000		52,000	
		TOTAL	**52,000**	**52,000**	**52,000**	**52,000**	**52,000**		**52,000**	**52,000**
Grand Total			**6,370,403**	**7,682,547**	**9,609,549**	**8,766,755**	**8,800,928**	**9,563,344**	**9,002,674**	**8,465,588**

Appendix 9. Research chairs, membership in learned societies, and awards received by Zoology faculty between 2018 and 2024.

Type	Awards & Honours	Recipient
Chair	Canada 150 Chair	Judith Mank
Chair	Canada Excellence Research Chair	Kayla King
Chair	Canada Research Chair - Tier 1	Amy Angert, Sally Otto & Trish Schulte
Chair	Canada Research Chair - Tier 2	Kota Mizumoto, Laura Wegener Parfrey & Rachel Germain (nominated)
Chair	UBC Presidents Excellence Research Chair	Claire Kremen
Learned Society	Early Career Fellow, Ecological Society of America	Mary O'Connor
Learned Society	Fellow, American Academy of Arts and Sciences	Mike Whitlock
Learned Society	Fellow, American Association for the Advancement of Science	Dolph Schluter & Mike Whitlock
Learned Society	Fellow, American Ornithological Society	Darren Irwin
Learned Society	Fellow, Animal Behaviour Society	Leticia Aviles
Learned Society	Fellow, Linnean Society of London	Kayla King
Learned Society	Fellow, Royal Canadian Geographical Society	Rick Taylor
Learned Society	Fellow, Royal Society of Canada	Trish Schulte, Diane Srivastava & Mike Whitlock
Learned Society	Fellow, Zoological Society of London	Kayla King
Learned Society	Foreign Fellow, American Philosophical Society	Dolph Schluter
Learned Society	Foreign Fellow, US National Academy of Sciences	Dolph Schluter
Learned Society	Honorary Fellow, Royal Entomological Society	Claire Kremen
Learned Society	Senior Fellow, Canadian Institute for Advanced Research	Brian Leander
Award/Honour	Robert G. Boutilier New Investigator Award, Canadian Society of Zoologists	Katie Marshall
Award/Honour	Alfred P. Sloan Research Fellowship	Kaitlyn Gaynor & Ben Matthews
Award/Honour	Bidder Award, Society for Experimental Biology	Trish Schulte
Award/Honour	Canadian Open Data Rising Star Award (Living Data Project)	Diane Srivastava
Award/Honour	Crafoord Prize, Crafoord Foundation & Swedish Royal Academy of Sciences	Dolph Schluter
Award/Honour	Darwin Medal, The Royal Society of London	Dolph Schluter

Type	Awards & Honours	Recipient
Award/Honour	Darwin-Wallace Medal, Linnean Society of London	Sally Otto
Award/Honour	E.W.R. Steacie Memorial Fellowship/Arthur B. McDonald Fellowship	Mary O'Connor & Kayla King
Award/Honour	Fry Medal, Canadian Society of Zoologists	Trish Schulte
Award/Honour	Honorary Doctorate	Colin Brauner, Claire Kremen & Judith Mank
Award/Honour	Human Frontier Science Program Career Developmental Award	Kota Mizumoto
Award/Honour	Insect Conservation Award, 2021, Royal Entomological Society	Claire Kremen
Award/Honour	Killam Prize	Sally Otto
Award/Honour	Krogh Award, American Physiological Society	Trish Schulte
Award/Honour	Lifetime Achievement Award, Society for the Study of Evolution	Sally Otto
Award/Honour	Michael Smith Foundation for Health Research Scholar Award	Ben Matthews, Kota MIzumoto, Kenji Sugioka & Kevin Wei
Award/Honour	Mid-Career Excellence Award, Society for Molecular Biology and Evolution	Kayla King
Award/Honour	Murray A. Newman Award for Excellence in Coastal Ocean Research	Chris Harley
Award/Honour	Order of British Columbia	Dolph Schluter
Award/Honour	Philip Leverhulme Prize for Biological Sciences, Leverhulme Trust	Kayla King
Award/Honour	R.A. Wardle Medal for Parasitism, Immunity & Environment, Canadian Society of Zoologists	Kayla King
Award/Honour	Scientific Medal, Zoological Society of London	Kayla King
Award/Honour	Steacie Prize for Natural Sciences	Mary O'Connor
Award/Honour	The Bicentenary Medal, Linnean Society of London	Kayla King
Award/Honour	Volvo Environment Prize	Claire Kremen
UBC Distinction	Peter Wall Institute Scholars Award	Doug Altshuler, Kayla King & Michelle Tseng
UBC Distinction	UBC Distinguished University Scholar	Mary O'Connor & Diane Srivastava
UBC Distinction	UBC Killam Faculty Research Fellowship	Katie, Marshall, Doug Altshuler, Amy Angert & Phil Matthews
UBC Distinction	UBC Killam Research Accelerator Fellowship	Laura Wegener Parfrey
UBC Distinction	UBC Killam Research Prize	Trish Schulte
UBC Distinction	UBC University Killam Professor	Sally Otto, Dolph Schluter

Type	Awards & Honours	Recipient
UBC Distinction	Wall Fellowship; Peter Wall Legacy Award	Michelle Tseng
Other	Highly Cited Researchers, Web of Science / Clarivate Analytics	Claire Kremen, Mary O'Connor & Daniel Pauly
Teaching	UBC Killam Teaching Prize	Mike Gordon, Pamela Kalas, Stella Lee & Lynn Norman
Teaching	West Coast Teaching Excellence Award	Celeste Leander
UBC Service	Excellence in Service Award, Faculty of Science, UBC	Mike Gordon, Doug Altshuler & Brett Couch

Appendix 10: Program worksheet tool for undergraduate students in the Biology Major.

Biology Program Worksheet

First Year	BIOL 112 ____ BIOL 121 ____ BIOL 140 or 180 ____ One of CHEM 121, 111 ,141 or CHEM 120 & 115 ____ CHEM 123 or CHEM 130 & 135 ____	*One of:* PHYS 101, 106, 107, 117, 131 ____ *One of:* CPSC 100, 103, 110, 301 or DSCI 100 ____	*One of:* MATH 100, 102, 104, 110, 120, 180, or 184 ____ *One of:* MATH 101, 103, 105, or 121 ____	**Communication Requirement 6cr of** WRDS 150; SCIE 113; any of ENGL 100, 110, 111, 112, 120, or 121; SCIE 300 or CHEM 300; APSC 176; LFS 150; FRST 150, Arts One; ASTU 100, 101: _____ and _____
Second Year	***Biology Fundamentals Courses:** BIOL 200 ____ BIOL 230 ____ BIOL 260 ____ BIOL 234 ____	***Organismal Courses:** ***Two*** from: BIOL 203 ____ BIOL 204 ____ BIOL 205 ____ BIOL 209 ____ BIOL 210 ____ MICB 211____	*One of:* CHEM 233 ____ CHEM 235 ____ or CHEM 203 ____ or CHEM 223 ____ CHEM 225 ____	**Arts Electives** [12cr] _____ _____ _____ _____
Third Year	*** **Life Science Selections** [20cr] _____ _____ _____ _____ _____ _____ _____ _____	BIOL 300 ____ BIOL 336 ____	** **Biology Lab Selections** Two from list: _____ _____	
Fourth Year		**Electives** [18 to 20cr] _____ _____ _____ _____ _____ _____ _____ _____		
Minimum Total Credits = 120				

*** One Organismal and/or one Fundamentals course and CHEM 235 can be deferred to the third year.**

****Biology Laboratory Selections 2 of:**
BIOL 306, 311, 326, 331, 337, 340, 341, 351, 352, 363, 402, 403, 404, and 437.
NOTE: MRNE courses may be taken with permission of a biology advisor.

*****Life Science Selection – 20 credits *(at least 12 credits must be BIOL or MRNE or ENVR 430):***
* Life Science selections that count towards the Science credit requirement: Any third- or fourth-year course in BIOC, CAPS, BIOL, MICB or MRNE that is open to Life Science majors plus: ENVR 430, EOSC 470, 474, 475, 478, GEOS (or GEOB) 307, 407, FNH 350, 351, 451, MATH 462, MEDG 410, 419, 420, 421, PCTH 305, 325. Life Science selections that do not count towards the Science credit requirement: APBI 311, 312, 314, 315, 318, 342, 401, 411, 418, 419, 442, 444, CONS 330, 440, 486, 486, 496, FRST 302, 310, 385, 386, 395, 399, 444, 485, 495.
Note: Life Science Selections do not include BIOL 300 and 336. Four credits of Biology lab selections are required; additional credits from Biology Lab Selections may count as Life Science Selections [i.e., BIOL 351 (4cr) = 2cr Biology Lab Selections & 2cr Life Science Selections].

Faculty of Science Elective Requirements *(May be any level if the upper-level requirement of **48 upper-level credits** including at least 30 credits from the Faculty of Science is satisfied. Also, up to 18 credits of course work in a faculty other than Science or Arts may be taken for credit.)*

- **Arts Electives** - **12 credits** from the Faculty of Arts.
- **Electives** – May be from any faculty.

Appendix 11: Undergraduate third and fourth-year biology labs. Students enrolled in the Biology Program must complete two of these courses.

BIOL 306 **Advanced Ecology:** Ecology of populations, communities and ecosystems. Tests of ecological theory with experiments and application to environmental issues. Labs meet once a month.

BIOL 311 **Experimental Methods in Animal Behaviour:** Designing, conducting, and analyzing studies of animal behaviour, with an emphasis on field-based methods. Students conduct capstone research projects.

BIOL 326 **Experimental Biology of Invertebrates:** Behaviour and ecology of invertebrates as revealed by hands-on experiments in the laboratory and field. Marine emphasis.

BIOL 331 **Developmental Biology:** Animal development and its underlying causal principles; introductory embryology.

BIOL 337 **Introductory Genetics Laboratory:** A laboratory course demonstrating the fundamental principles of inheritance: Mendel's Laws, sex-linkage, mapping, mutagenesis, chromosome structure, developmental biology, biochemical and population genetics.

BIOL 340 **Introductory Cell Biology Laboratory:** Designing and conducting cell biology experiments using unicellular eukaryotes or prokaryotes with emphasis on techniques in microscopy and cell biology.

BIOL 341 **Introductory Molecular Biology Laboratory:** Designing and conducting molecular biology experiments using bioinformatics recombinant DNA techniques.

BIOL 351 **Plant Physiology I:** Mechanisms and regulation of functional processes contributing to the assimilation, transport and utilization of water, mineral nutrients and carbon by plants.

BIOL 352 **Plant Physiology II: Plant Development:** Introduction to the processes involved in growth and development: cell division, tissue culture, meristems, differentiation, and the action of major growth regulators, and photomorphogenesis. Emphasis on experimental approaches.

BIOL 363 **Laboratory in Animal Physiology:** Experimental studies in animal physiology. Restricted to Majors and Honours students in Biology, Nutritional Sciences and Combined Honours Biophysics.

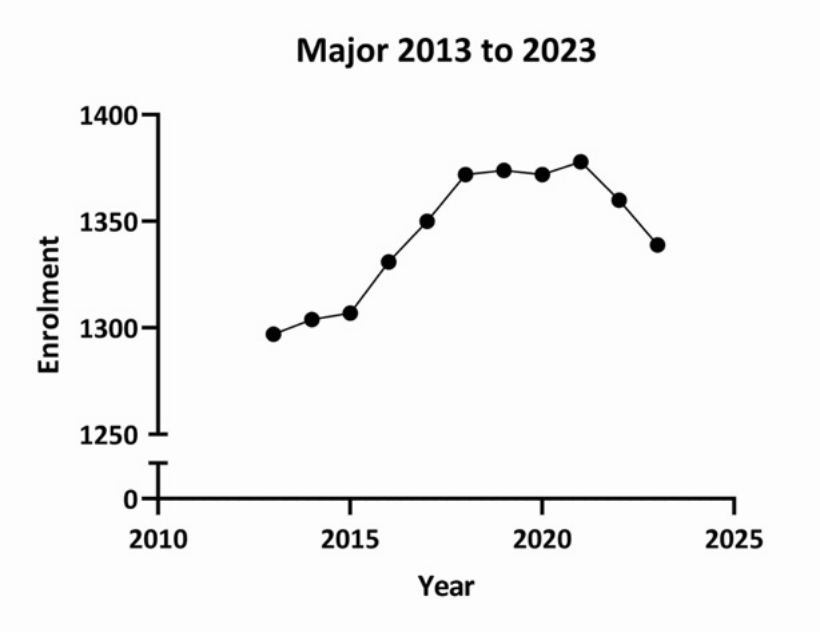
BIOL 402 **Aquatic Ecology:** Theoretical and applied limnology; ecology of inland water organisms in relation to physical, chemical and biological factors. One weekend field trip required.

BIOL 403 **Microbial Ecology:** Theoretical and applied ecology of microbes. Focus on microbial symbionts of animals, plants and seaweeds. Research project development through critical analysis of microbial ecological literature and computational analysis of ecological data.

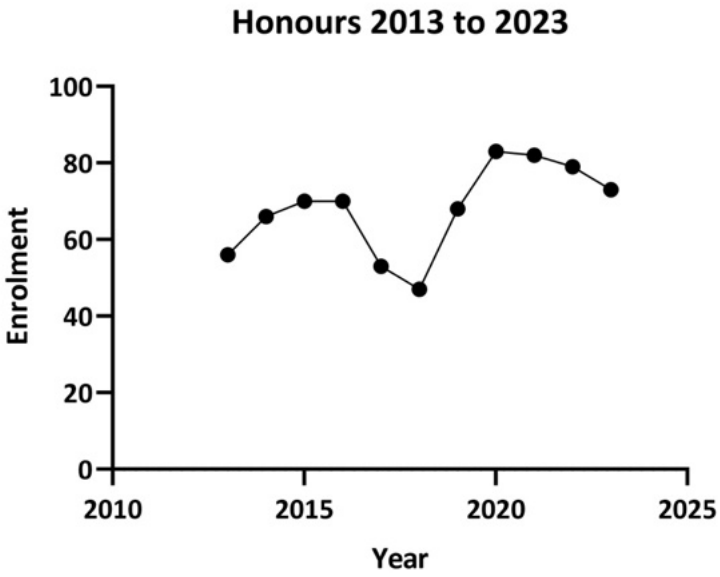
BIOL 404 **Ecological Methodology:** Design, execution, and analysis of ecological surveys and experiments. Practical field methods for estimating population metrics and describing community structure. Computer techniques for the statistical analysis of ecological data.

BIOL 437 **Laboratory in Animal Cell Molecular Biology:** The use of recombinant DNA techniques to explore problems in animal developmental biology.

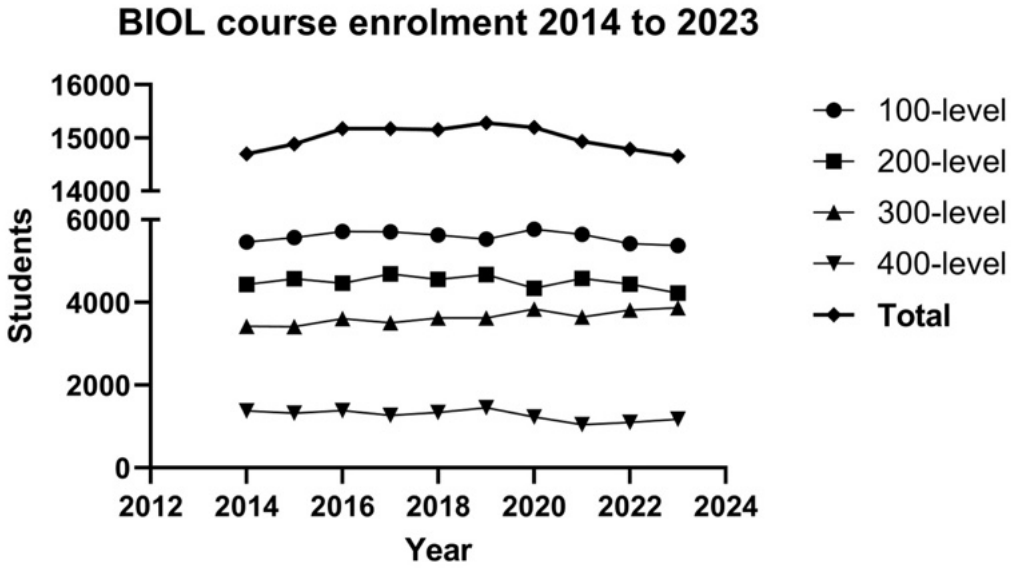
Appendix 12: Total enrollment in the biology major between 2013 and 2023. These data were obtained from the Faculty of Science. Enrollment estimates for 2024 are 1058.



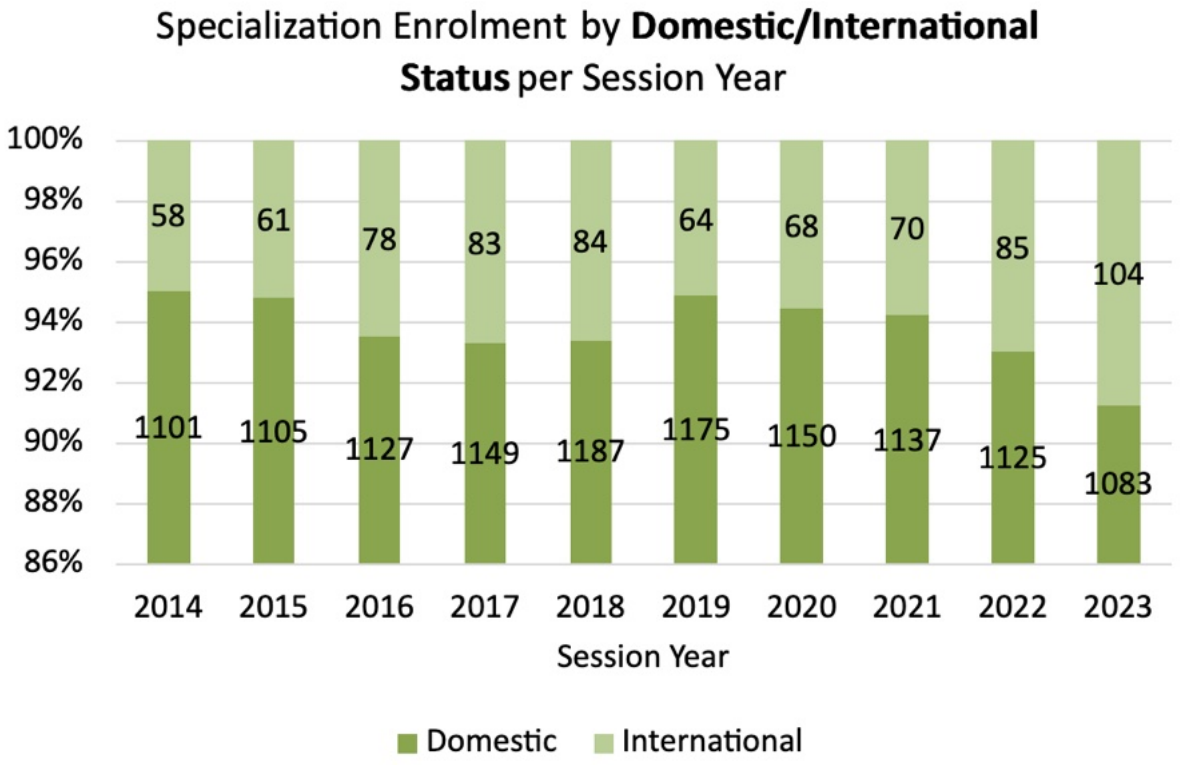
Total enrollment in the biology honours between 2013 and 2023. These data were obtained from the Faculty of Science.

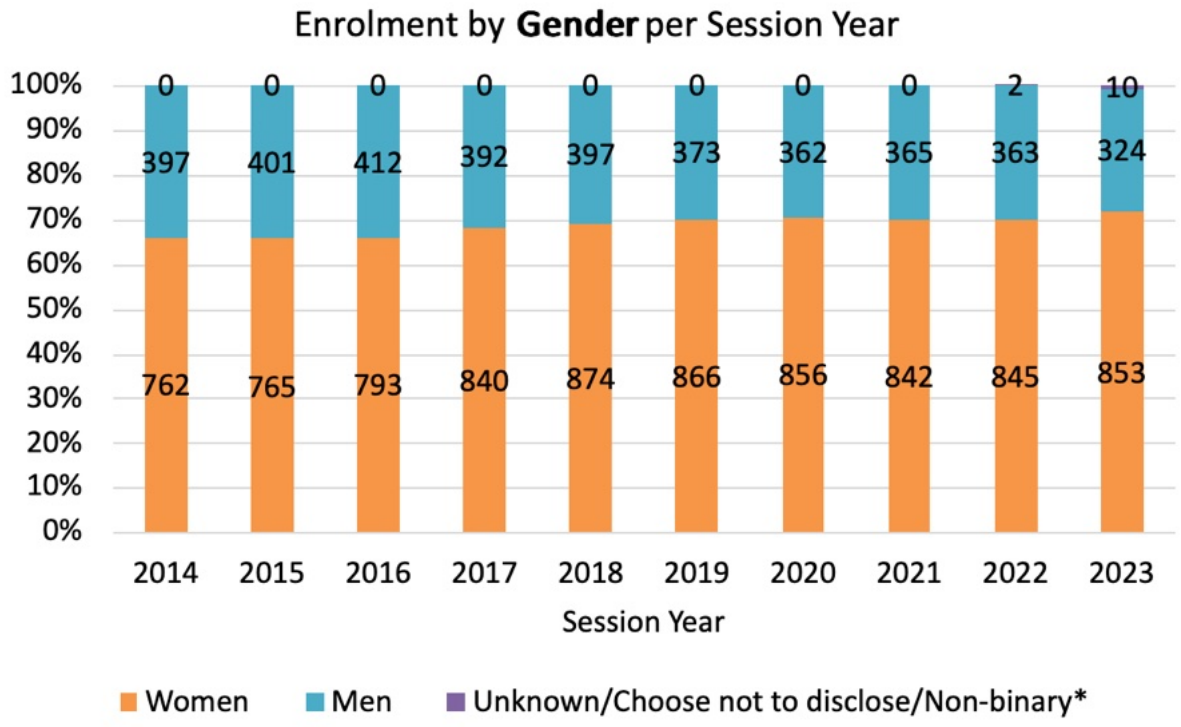


Appendix 13: Total student enrollment in biology courses across levels and in total between 2014 and 2023.

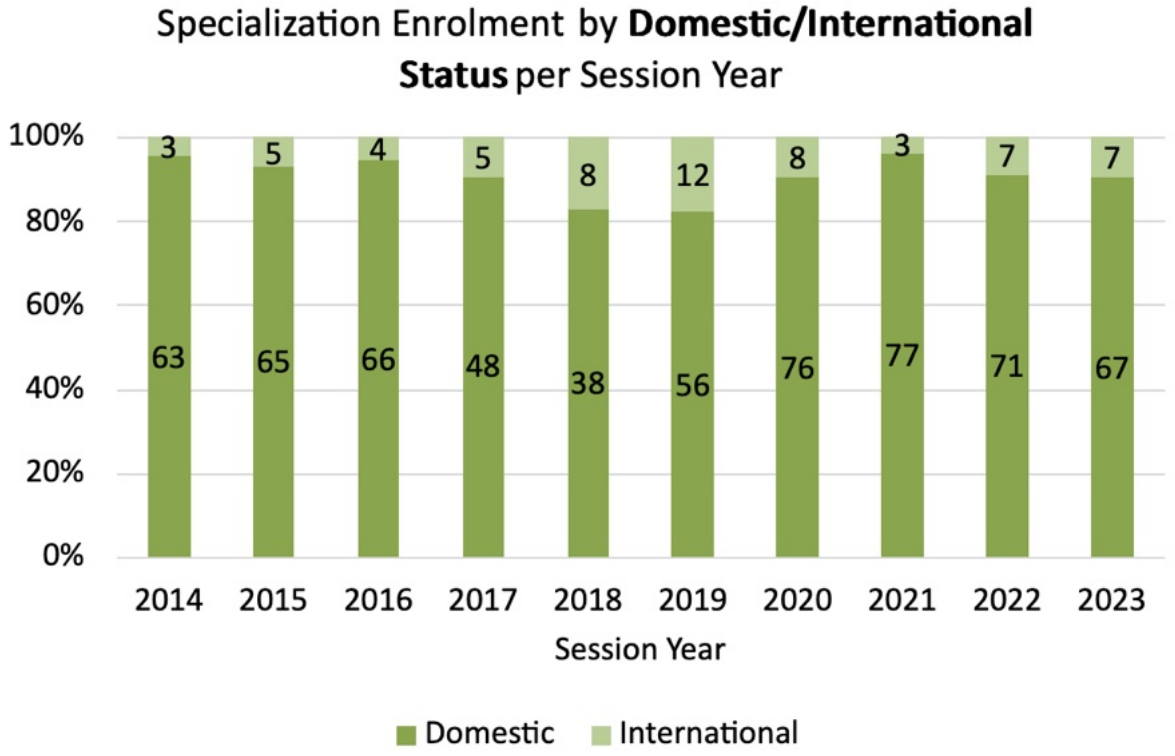


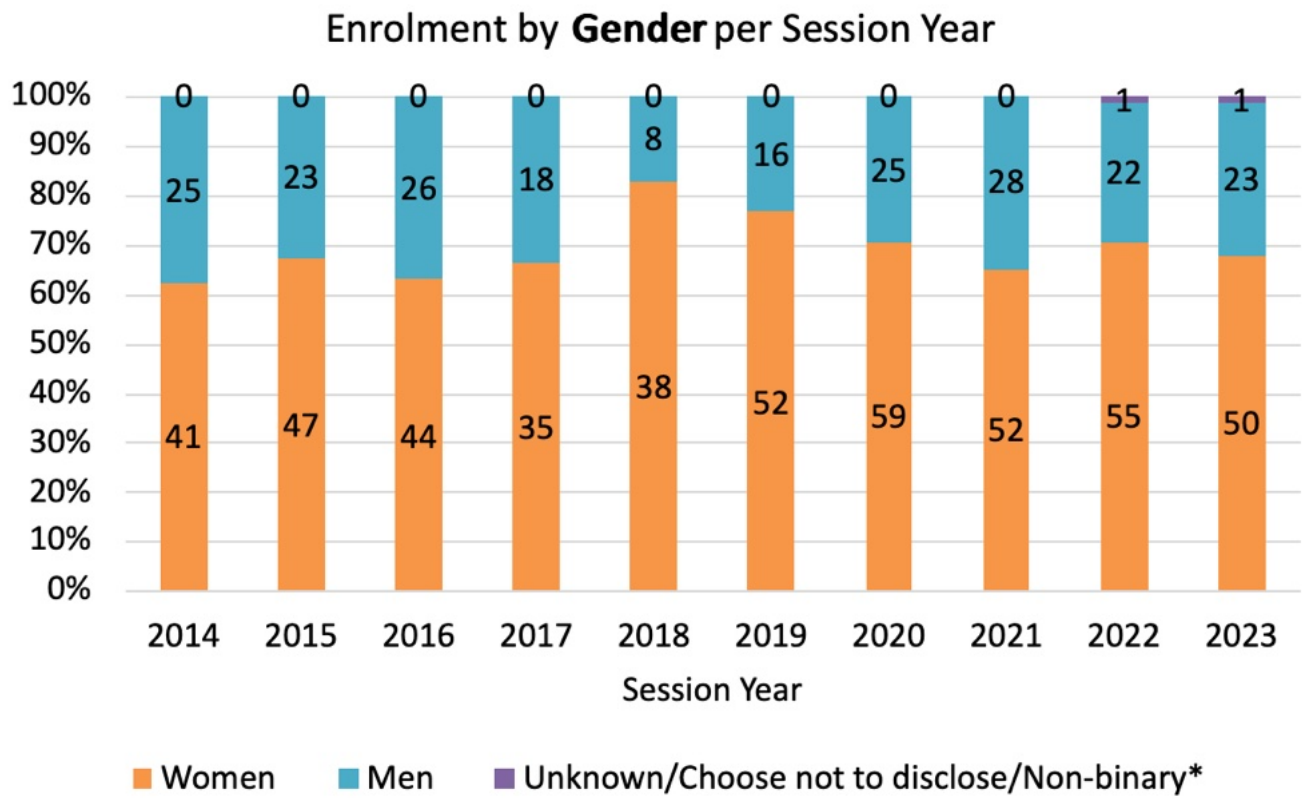
Appendix 14: Percentage of domestic/international and gender of students in the Biology Majors Program. Data and graphics are from the Planning, Analytics, & Institutional Research (PAIR) Office.



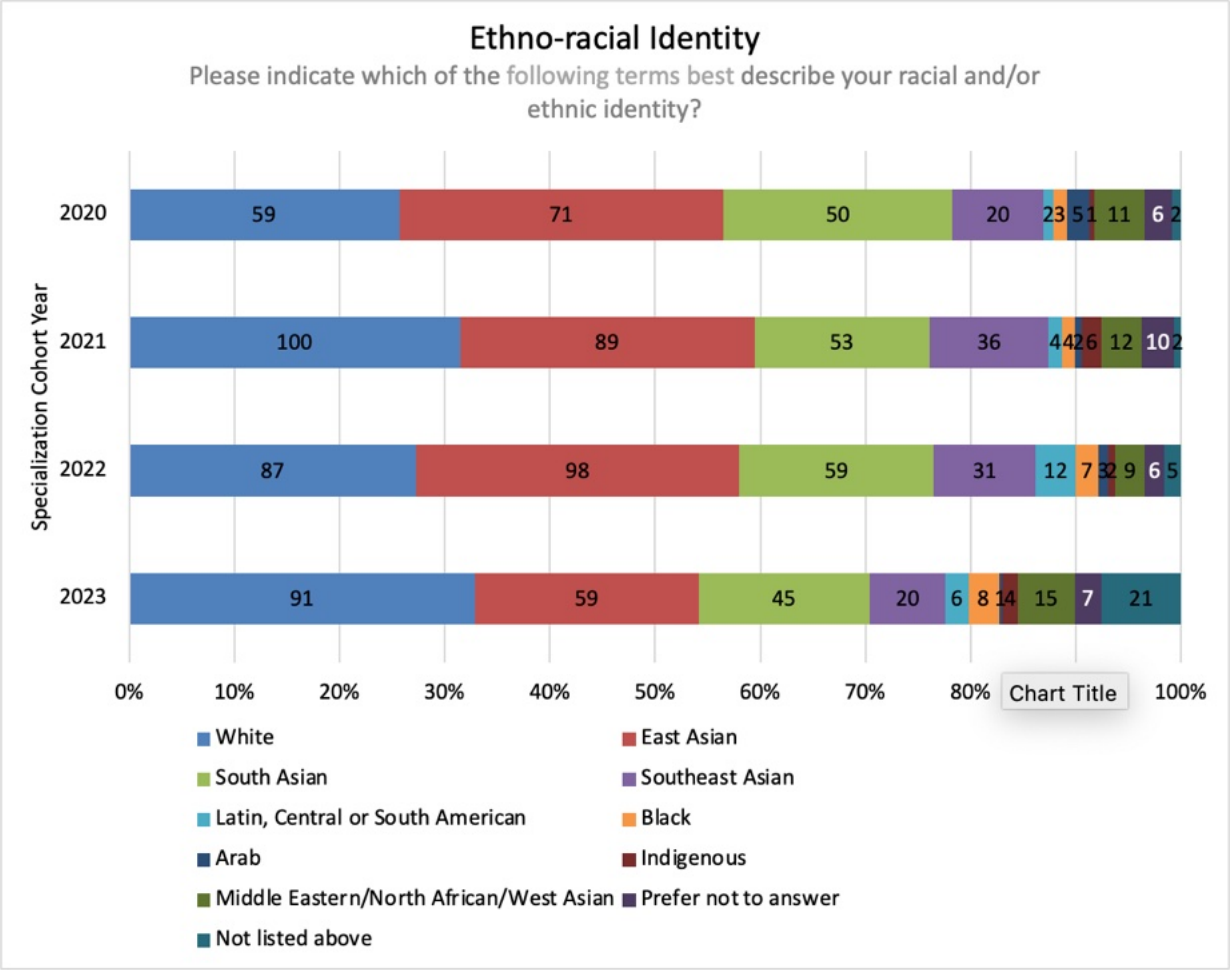


Appendix 15: Percentage of domestic/international and gender of students in the Biology Honours Program. Data and figures are from the PAIR Office.





Appendix 16: Ethno-racial identity of undergraduate students in the Faculty of Science. Data are not available for students in the Biology Program. Data and figures are from the PAIR Office.



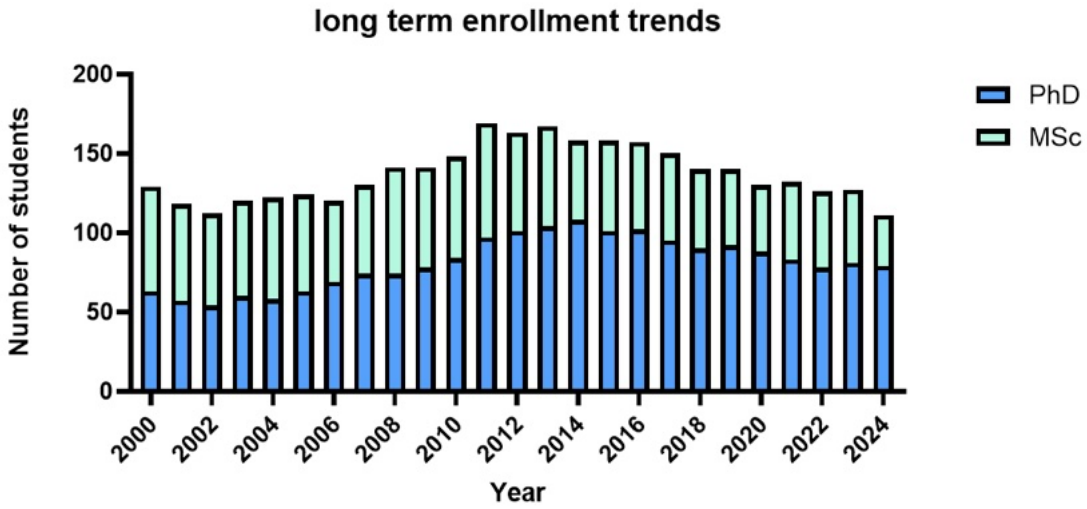
Appendix 17. Undergraduate students enrolled in research-directed studies (BIOL 448) and honours thesis (BIOL 449) in the Biology Program and supervised by Zoology faculty.

Session	Total # of BIOL 448 Students	# of BIOL 448 students supervised by a Zoology Faculty	% of BIOL 448 students supervised by a Zoology Faculty
2018WS	101	24	24
2019WS	103	37	36
2020WS	75	29	39
2021WS	92	30	33
2022WS	99	34	34
2023WS	88	21	24
2024W	87	27	31

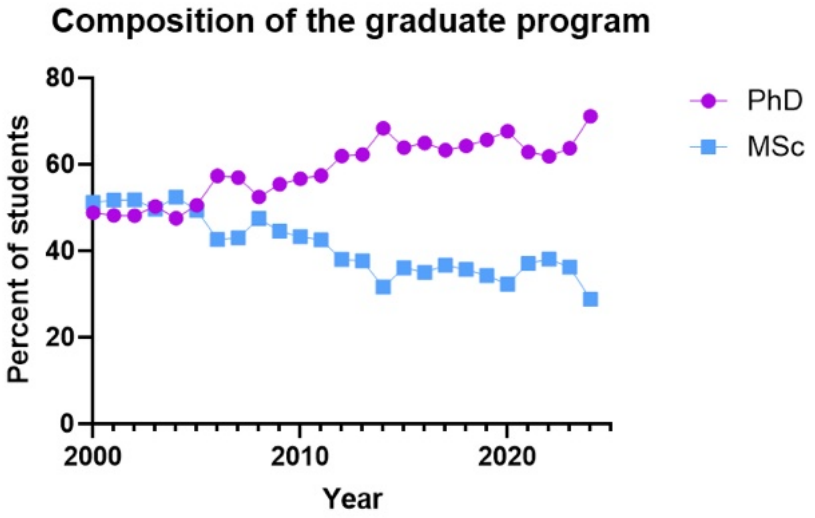
Session	Total # of BIOL 449 Students	# of BIOL 449 students supervised by a Zoology Faculty	% of BIOL 449 students supervised by a Zoology Faculty
2018W	17	4	24
2019W	24	11	46
2020W	38	22	58
2021W	31	14	45
2022W	44	23	52
2023W	31	10	32
2024W	37	17	46

Appendix 18: Long-term enrollment (A), composition (B) and composition by research cluster (C) trends in the Zoology Graduate Program.

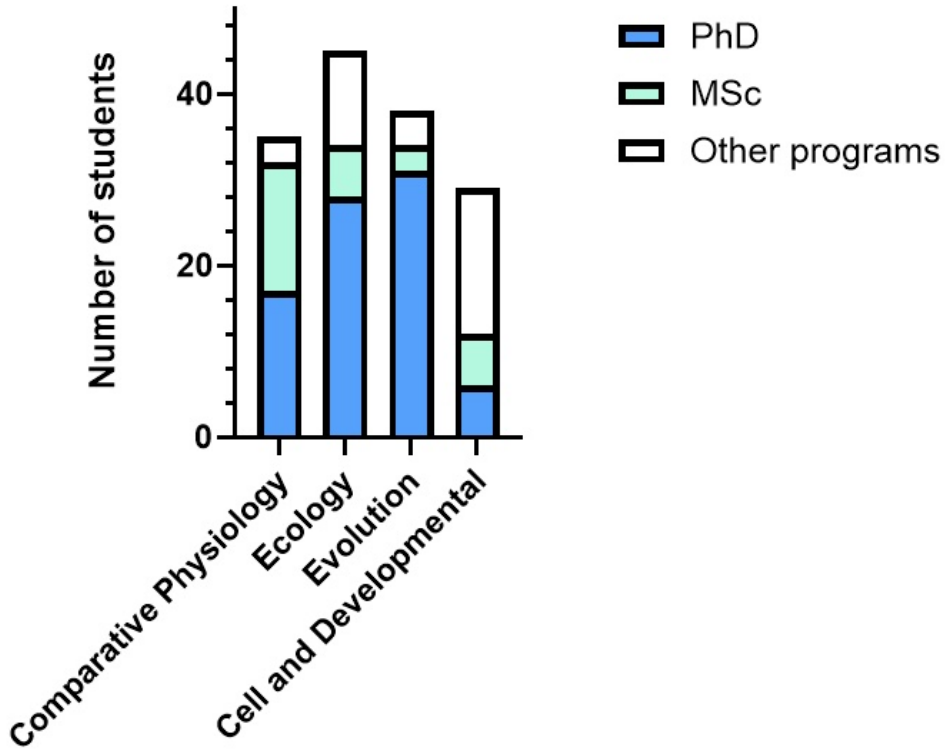
A) Long term enrollment trends



B) Composition of the Zoology Graduate Program

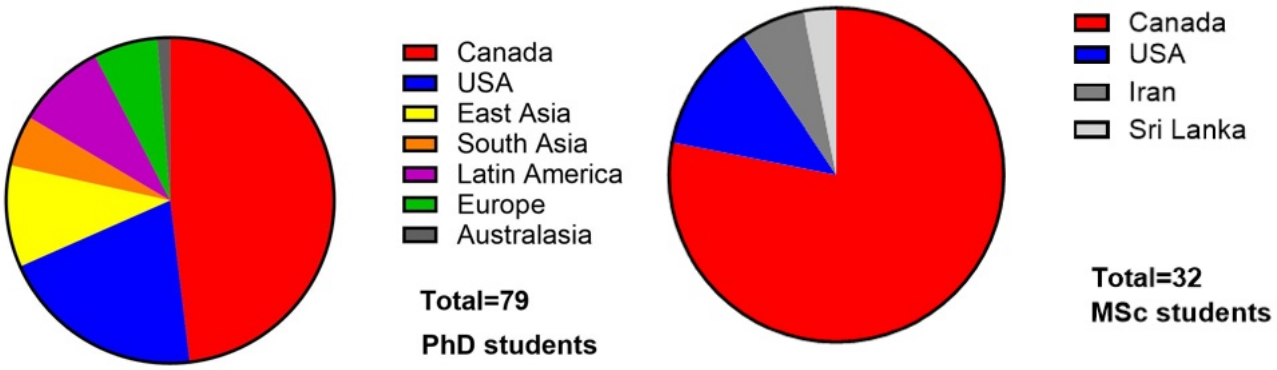


C) Composition of MSc and PhD students across clusters. Blue and green bars are PhD and MSc students, respectively, in the Zoology Graduate Program. White bars are combined PhD and MSc students supervised by Zoology Faculty through other programs.

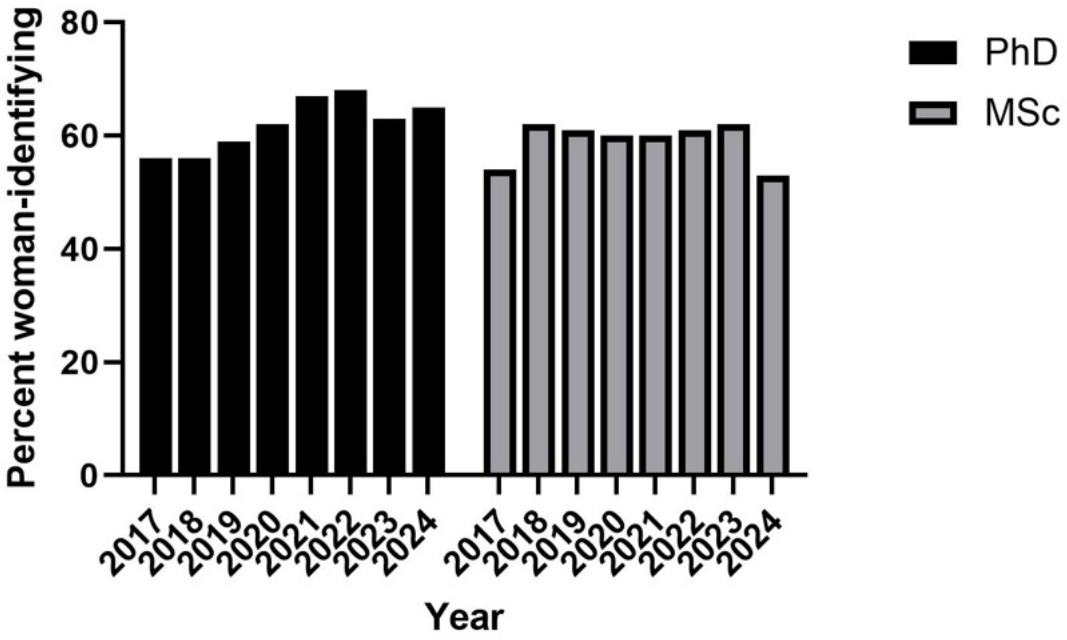


Appendix 19: Demographics of students in the Zoology Graduate Program. Data were provided by G+PS.

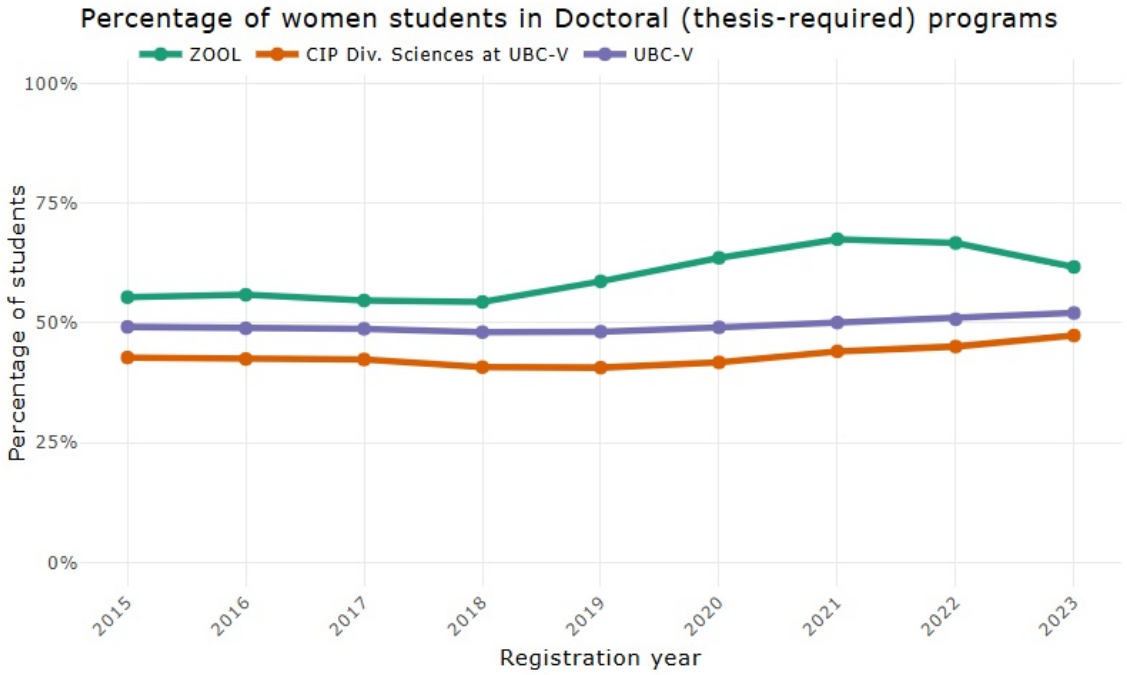
A) Citizenship of graduate students in the Zoology Graduate Program



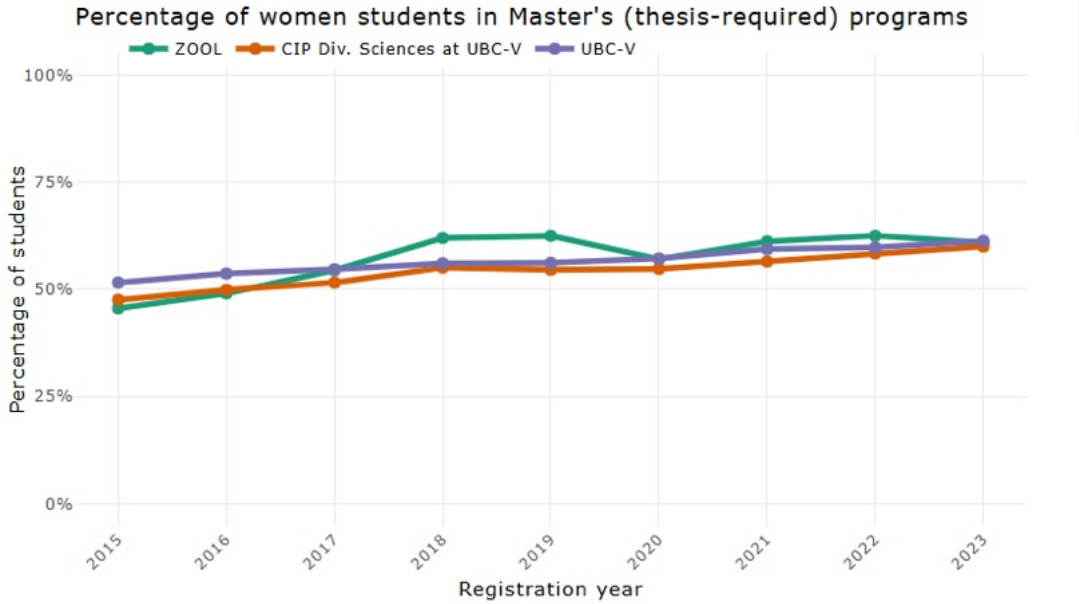
B) Percentage of students in Zoology Graduate Program identifying as women



C) Percentage of students in the Zoology doctoral program who identify as women compared to the Faculty of Science and UBC. Data and figures are from G+PS.

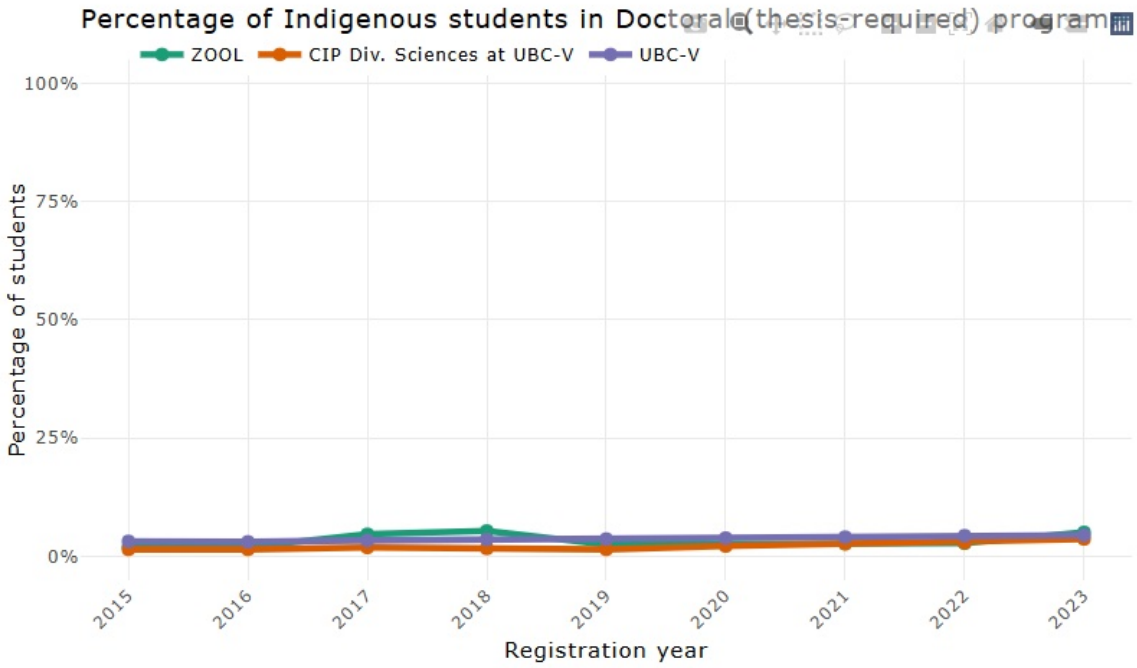


D) Percentage of students in the Zoology masters program who identify as women compared to the Faculty of Science and UBC. Data and figures were provided by G+PS.

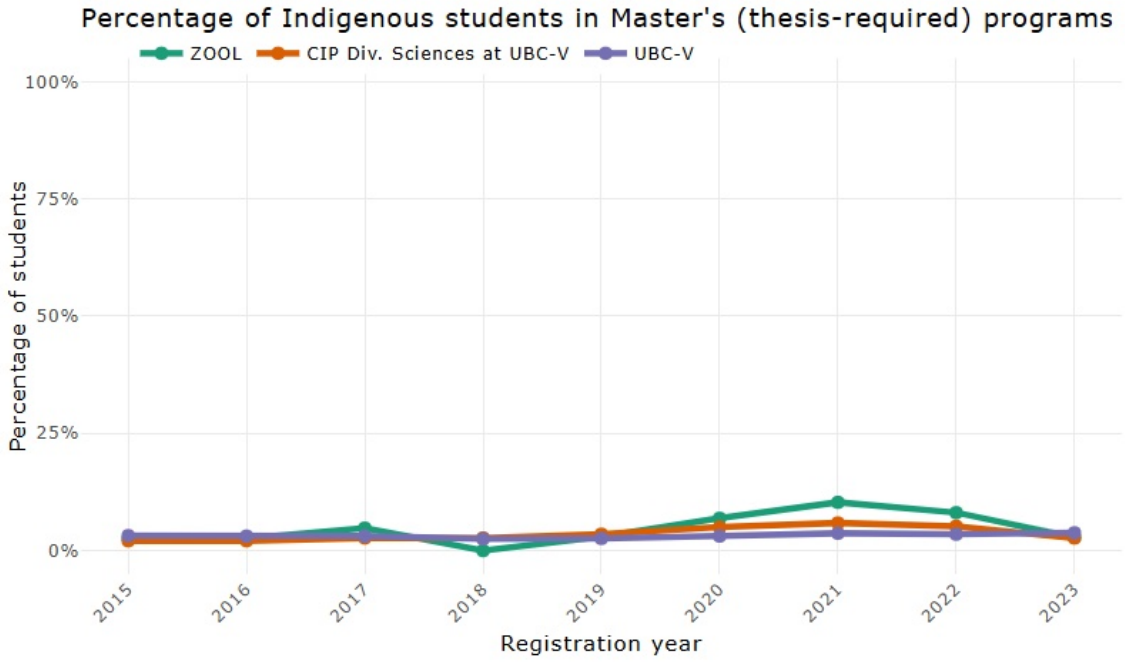


Appendix 20: Percentage of Indigenous students in the Zoology doctoral (A) and master (B) program compared to the Faculty of Science and UBC. Data and figures were provided by G+PS.

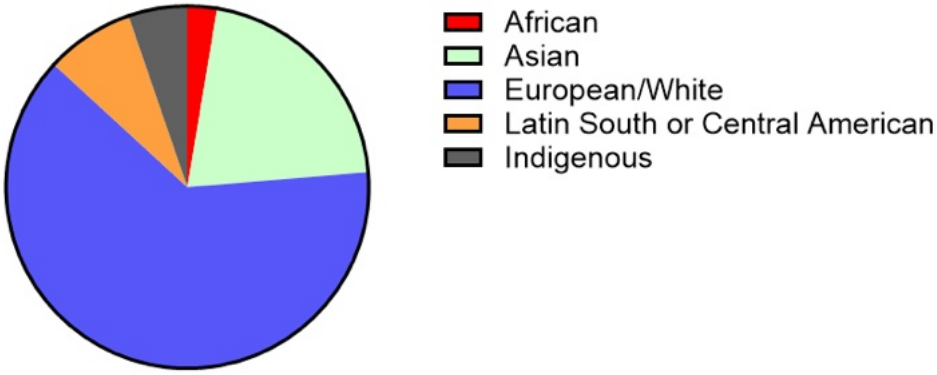
A) Indigenous Doctoral Students



B) Indigenous Masters Students

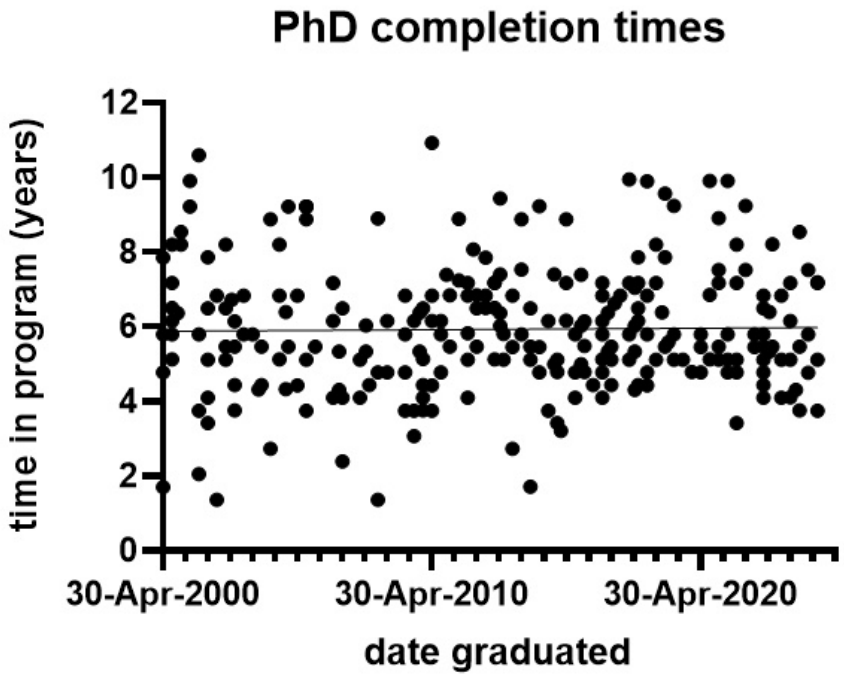


Appendix 21: Ethnic makeup of Zoology Graduate Students. Estimate from a voluntary survey conducted by the ZGSA. The ZGSA has given permission for the department to report these data. Response rate = 34%.

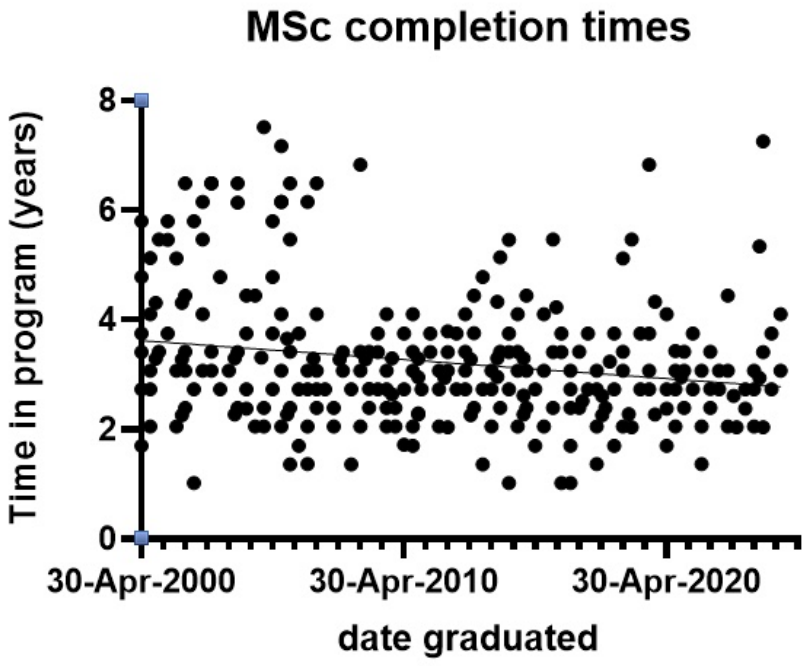


Appendix 22: Longer term trends for PhD (A) and MSc (B) completion times and comparisons across units (C).

A) PhD completion times



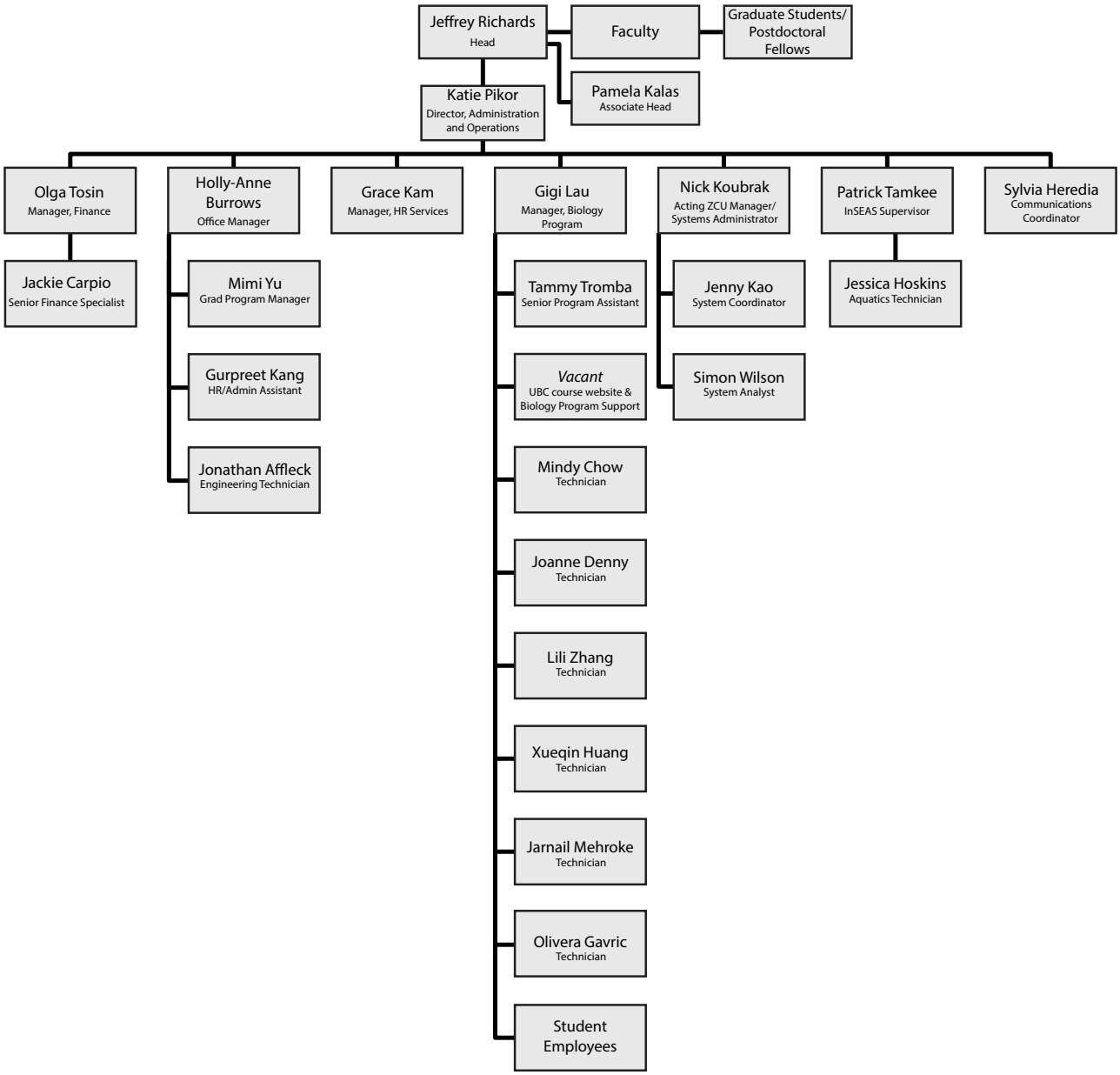
B) MSc completion times



C) Comparison of time to completion across units

Degree	Unit	Percent graduated	Time to completion (Years)
PhD	ZOOL	86.00%	6.1
PhD	UBC Science Programs	81.80%	5.7
PhD	UBC all Programs	79.10%	5.8
MSc	ZOOL	95.20%	2.7
MSc	UBC Science Programs	88.70%	2.7
MSc	UBC all Programs	90.00%	2.7

Appendix 23. Department of Zoology organizational structure.



Appendix 24. Zoology staff profiles

The Undergraduate Biology Program

JARNAIL CHANDI, Research Assistant Technician (jointly appointed with Botany). Jarnail is the teaching lab coordinator for BIOL 340 (Introductory Cell Biology Laboratory) and 341 (Introductory Molecular Biology Laboratory).

MINDY CHOW, Research Assistant Technician (jointly appointed with Botany). Mindy is the teaching lab technician for BIOL 337 (Introductory Genetics Laboratory) and BIOL 342 (Integrative Biology Laboratory). She is also responsible for ordering biology teaching lab supplies in the summer and is a member of the Zoology Local Safety Team.

JOANNE DENNY, Research Assistant Technician (jointly appointment with Botany). Joanne is the teaching lab technician for BIOL 363 (Animal Physiology laboratory) and BIOL 331 (Developmental Biology). She is also responsible for autoclave user training and regular maintenance of autoclaves in the Biological Sciences Building and the BRC. She is also part of the Zoology and Botany Local Safety Committee and coordinates lab gloves and plastics recycling in Biological Sciences Building.

OLIVERA GARVIC, Research Assistant Technician (jointly appointed with Botany). Olivera is the teaching lab technician for BIOL 340 (Introductory Cell Biology Laboratory) and BIOL 341 (Introductory Molecular Biology Laboratory).

XUEQIN HUANG, Research Assistant Technician. Xueqin is the teaching lab technician for BIOL 204 (Vertebrate Structure and Function) and BIOL 205 (Comparative Invertebrate Zoology).

GIGI LAU, Biology Program Manager (jointly appointed in Botany). Gigi oversees the day-to-day operations of the Biology Program. She is responsible for the management of the Biology Program staff, Biology Teaching Assistant assignment process, TA management and training such as the Biology TA Development and Advancement workshop (TADA), and manages the teaching labs facilities. She is also responsible for undergraduate research students, directed studies and honours students, oversees undergraduate course registration and overrides, Workday Student and undergraduate course field safety plans.

TAMMY TROMBA, Senior Program Assistant (jointly appointed in Botany). Tammy oversees the daily administration of the Biology undergraduate program for the Departments of Zoology and Botany. She answers inquiries and advises students on Biology admission, course prerequisites/registration, and program requirements. She schedules Biology courses and exams, is responsible for undergraduate course registration and overrides, Biology Undergraduate Awards and hiring undergraduate students. She provides administrative support to the Associate Head of Biology and the Biology Program Manager.

LILI ZHANG, Research Assistant Technician: Lili is a teaching lab technician who assists with BIOL 363 (Animal Physiology laboratory) and BIOL 331 (Developmental Biology). Lili is also the “call out” person responsible for teaching lab critical equipment after building power outages and she volunteers to help with department social activities.

VACANT, UBC Course Website & Biology Program Support (jointly appointed with Botany). The position provides training and support to faculty and staff in using learning management systems. Responsible for troubleshooting and assisting with the creation of course sites, including course layout, uploading content, creating online assessments and providing workarounds in response to program faults or issues.

Departmental Administration & Communications

HOLLY-ANNE BURROWS, Office Manager. Manages the main Zoology office, the mechanical workshops and the Graduate Program Manager. Oversees faculty recruitment processes, faculty relocation, mentoring, and peer review of teaching process. Coordinates all administrative processes and procedures related to faculty committee support.

JACKIE CARPIO, Senior Financial Specialist. Jackie coordinates UBC VISA card program for Zoology cardholders, is responsible for financial data entry, performs accounts payable functions for the department, and trains students on expense report submissions.

SYLVIA HEREDIA, Communications Coordinator. Sylvia facilitates the department's external and internal communications. Sylvia's expertise includes science illustration, design, photography, and web hosting. In collaboration with Zoology members, Sylvia creates illustrations for research, including grant proposals and publications. She also creates illustrations, photographs, and posters to promote news and events. On a regular basis, Sylvia updates the Zoology website content and social media accounts and creates internal communications about weekly events and other departmental news. She is also responsible for organizing departmental events.

GRACE KAM, Manager, HR Services. Responsible for managing the faculty appointment, reappointment, promotion and tenure processes. Manages all aspects of staff appointment processes, including preparation of staff records. Coordinates annual faculty study leave request processes as well as merit and PSA. Oversees the coordination of immigration requirements for foreign and visiting faculty, advises faculty on departmental and UBC HR policies and processes. Oversees all aspects of HR processes and support to PDFs.

GURPREET KANG, HR and Administrative Assistant. Organizes a variety of administrative processes for the department. Provides administrative support to the Department Head, Office Manager, Department Administrator, and faculty. Assists with the faculty and staff recruitment process. Resource person for PDFs, Research Associates and visiting academics in the department. Handles office inquiries from faculty, students, visitors and the general public.

KATIE PIKOR, Director, Administration and Operations: Katie is responsible for the leadership and management of the operations of the Department of Zoology; this includes overseeing the Administration, HR, IT, Finance, InSEAS, Mechanical Workshops, and the Biology Program.

OLGA TOSIN, Finance Manager. Advises faculty and staff on UBC financial policies and procedures. Provides financial management support to Zoology PIs. Trains faculty and staff on finance-related matters. Manages financial fiscal year end for the department and prepares departmental operational budget with the finance team.

MIMI YU, Graduate Program Manager. Mimi oversees the administration of the two Zoology graduate programs (MSc and PhD in Zoology), which includes admissions, academic progress tracking, awards, student finance/pay, student appointments within the department, graduate course scheduling, and ensuring compliance of the programs to UBC Graduate School and university policies. She also provides support to students directly with general academic advising and referrals to campus resources when needed. She is the first point of contact for graduate program inquiries both within the Zoology community and beyond.

Technical & Research Support

JONATHAN AFFLECK*,* Mechanical Engineering Technician. Responsible for the operations of the Mechanical Workshop Facility in Zoology supporting academic and research work; this includes performing highly skilled technical duties such as design, fabrication, installation and maintenance of complex scientific equipment for a variety of teaching and research programs.

JESSICA HOSKINS, Research Assistant Technician. Assists the senior aquatics animal care technician in the day-to-day operations of the InSEAS. This involves care and inspection of aquatic animals, and monitoring of the research facilities.

PATRICK TAMKEE, Research Assistant Technician. Patrick is responsible for the day-to-day operations of InSEAS, which involves the maintenance, care, and inspection of aquatic animals and research facilities in accordance with the Canadian Council on Animal Care (CCAC) guidelines. Training of technicians, students, and researchers in animal husbandry and CCAC guidelines is expected. Second, this position serves as safety consultant and Chair of Zoology Local Safety team.

Zoology Computing Unit

VACANT*:* Manager, Zoology Computing Unit.

JENNY KAO*,* Systems Coordinator. Jenny is responsible for supporting and maintaining Zoology's computer systems and providing technical support to faculty, staff and students.

NICK KOUBRAK*,* Systems Administrator and Acting Manager. Nick is responsible for the departmental server cluster and oversees cybersecurity.

SIMON WILSON*,* Systems Analyst. Simon provides day-to-day computer support for faculty, staff and students.

Appendix 25: Activities of the Indigenous Strategic Plan Committee

The Zoology department is actively implementing the Indigenous Strategic plan by creating a Biology Indigenous Strategic Plan (ISP) committee and supporting initiatives to support Indigenous students within Biology and Science, increase exposure to Indigenous scientists, teachings, and context in the curriculum, and increase awareness and knowledge of Indigenous experiences throughout the department.

The Biology ISP committee grew out of efforts taking place within the ZEDI committee. In December 2023 the ZEDI committee hosted a half-day workshop in partnership with the Botany EDI committee to assess current progress of the department in implementing the UBC Indigenous strategic plan and define priorities.

The Zoology department established a standing committee jointly with Botany to create and implement an Indigenous Strategic plan for the departments and the Biology program, which convened in fall 2023. The committee is jointly chaired by Laura Parfrey (Associate Professor Botany and Zoology; settler), Erica Jeffery (Science Education Specialist in Zoology; settler), and Michelle Tseng (Assistant Professor Botany and Zoology; settler). Inaugural members are Claire Kremen (Zoology and IRES Professor and Director of IBioS; settler), Liane Chen (Associate professor of Teaching; settler), Sunita Chowira (Botany Professor of Teaching; settler), Celeste Leander (Botany Professor of Teaching; settler), Elizabeth (International Botany MSc student), Aaron Skinner (Zoology PhD student; settler), Duncan MacNaughton (Zoology PhD student; Ktunaxa), and Kaden Wigard (Biology undergraduate; Penelakut).

The committee has established terms of reference and identified three priority areas for the upcoming year:

1. Fostering community among Indigenous students within the Biology program and in STEM fields and developing connections to research opportunities.
2. Working towards increasing representation of Indigenous peoples at all levels, including developing hiring plans to recruit and support Indigenous faculty members.
3. Increasing awareness of and connection to Indigenous experiences and ways of knowing across the department.

Goal 1: Laura Parfrey, Erica Jeffery, Duncan MacNaughton, and Kaden Wigard are leading efforts in the Faculty of Science to foster a stronger sense of community and connection among Indigenous students in STEM. This work has been supported by two grants from Skylight in the Faculty of Science with matching funds from the Zoology department. We have submitted a grant to the UBC Indigenous Strategic Initiatives fund to broaden this work.

We heard in focus groups and in follow-up conversations that Indigenous students in Biology and other STEM disciplines at UBC feel isolated in their programs, unaware and overwhelmed when it comes to navigating the various academic supports available to them, and particularly disconnected when it comes to pursuing research experience and mentorship opportunities. The lack of community in STEM programs feeds back into itself; anecdotally, many Indigenous students transfer from STEM programs into Arts programs, where there is a greater perceived sense of belonging and support. To address these needs, we have:

- Organized two social events per term connecting Indigenous students with each other and to advisors and career development programs in partnership with Dana-Lyn MacKenzie and Danilo Caron from the faculties of Applied Science and Land and Food Systems, as well as the Faculty of Science liaison Ashley Welch.
- We recently established a dedicated space for Indigenous students in STEM in BioSci 2032, with support from Zoology and a Skylight development grant. We have commissioned biology-themed Indigenous artwork from a biology student who is an accomplished graphic artist. We have also planned end-of-term social gatherings featuring cultural activities (beading and drum making) to make this a space where students can freely share their culture and traditions.
- Developed an ISI proposal to continue to advance these community-building initiatives and explore new avenues to connect with Indigenous STEM students early in their careers by expanding the BUDR program to offer research experiences and mentorship specifically for Indigenous students across STEM programs beginning in the first year. We have in-kind funding for 5 years through the Peter Wall Legacy Fellowship held by co-applicant Tseng. This will be used to hire an Indigenous graduate student as coordinator. In year one (project establishment phase), this coordinator will be joined by an additional student supported by ISI funds if the proposal is successful.

Goal 2: Michelle Tseng and Claire Kremen are leading efforts to develop faculty hiring plans to support hiring Indigenous scholars within Zoology.

Goal 3: Students Elizabeth Orhuame and Aaron Skinner lead reflection groups for department members to collectively take the Weaving Relations course and reflect on their learning journey.

The Biology program is surveying instructors to understand better where Indigenous content, guest lectures, concepts, examples, and traditional culture are being incorporated across the curriculum. Indigenous students highlighted a desire to bring in more Indigenous scholars as guest lecturers to promote Indigenous voices in STEM and enhance the curriculum. Within the ISP committee, Celeste Leander, Liane Chen, and Sunita Chowrira are working to identify ways to support the inclusion of Indigenous content across the curriculum.

Appendix 26: Results of Biology Program instructor survey on implementing actions under UBC Indigenous Strategic Plan Goal 4, Indigenizing the curriculum. The table below illustrates how many Zoology faculty have addressed each action, and examples are provided below the table. Twenty-one faculty responded to the survey.

Actions under ISP Goal 4 (Indigenizing the curriculum)	Yes, I implement(ed) or contribute(ed) to this action in one or more of my courses.	Yes, I implement(ed) or contribute(ed) to this action in my research, EL, or service.	No, I do not implement or contribute to this action and have not done so in the past.
Action 15: "Undertake university-wide, Faculty-level curriculum reviews to ensure Indigenous histories, experiences, worldviews and knowledge systems are appropriately integrated and that all Faculties are fully compliant with the Truth and Reconciliation Commission's Calls to Action."	6	14	2
Action 16: "Ensure all academic programs, undergraduate and graduate, include substantive content in at least one course which explores Indigenous histories and identifies how Indigenous issues intersect with the major field of study of the Faculty."	8	0	12
Action 17: "Provide equitable and timely financial compensation to Indigenous people who support the Indigenization of curriculum."	1	3	17
Action 18: "Continue to partner with Indigenous communities locally and globally to develop accredited post-secondary Indigenous knowledge programs that can be delivered in communities and on campus."	2	0	19

For **Action 15** as it relates to undergraduate courses, faculty have included in their courses:

- discussions of the different uses of plants by Indigenous Peoples
- relevant readings about plants by Indigenous scholars
- case studies where partnerships with Indigenous communities lead to successful outcome
- research and information on Coast Salish woolly dog, how the wool was used, and how the breed was lost
- incorporating elements of Two-Eyes-Seeing in an observation nature journaling activity
- examples of how various Indigenous people have domesticated crops

As a focused example, in BIOL 420, Ocean Conservation and Sustainability, includes:

- consultation with Indigenous leaders (and others) on the nature and content of the key projects (totaling 50%) in the course
- tailoring focal projects to meet requests from Indigenous leaders, and then offer the projects to those Indigenous leaders
- inviting Indigenous leaders to speak to the students in the classroom
- incorporating Indigenous content in many lectures
- conducting two field trips (to Steveston and False Creek) that have substantial Indigenous content and relevance

For **Action 15** as it relates to research, EL, and service, faculty have:

- helped the Institute for Resource, Environment, and Sustainability review grad curriculum for Indigenous content
- helped establish ZEDI ISP committee

For **Action 16** as it relates to undergraduate courses, faculty have:

- included weekly readings that aim to amplify Indigenous voices and specifically how salmon has been historically viewed and/or is now used in various cultures
- discussed best practices for carrying out genomics research within Indigenous populations, ownership of data; Northern Biobank; how to collect and handle samples from Indigenous people in a respectful and culturally appropriate manner
- discussed ethics in science and our role in its future
- during field trips, discussed the significance of the place in terms of medicines, supplies, and Indigenous people's identities
- included exam questions based on ion channel research carried out by investigators who were examining the properties of medicinal remedies for ataxias pioneered by the Kwakwaka'wakw First Nation
- included classes on Biocultural Diversity, concepts of Indigenous Planetary Health, the relationship between Indigenous worldview and "Doughnut Economics," the role of Indigenous knowledge in obtaining wild and cultivated foods, how conservation has affected Indigenous peoples adversely, the effectiveness of Indigenous-led conservation efforts, the relevance of Indigenous worldviews to reconstituting ecosystems services as 'nature's contributions to people', and more

For **Action 17** as it relates to undergraduate courses, research, EL, and service, faculty have:

- arranged for the Biology Program to compensate Indigenous knowledge-holders with an honorarium of $400 (each) for their 1-2 hour contributions to the course.
- helping find Indigenous-focused spaces as part of ISP committee contributions

For **Action 18** as it relates to undergraduate courses, faculty have:

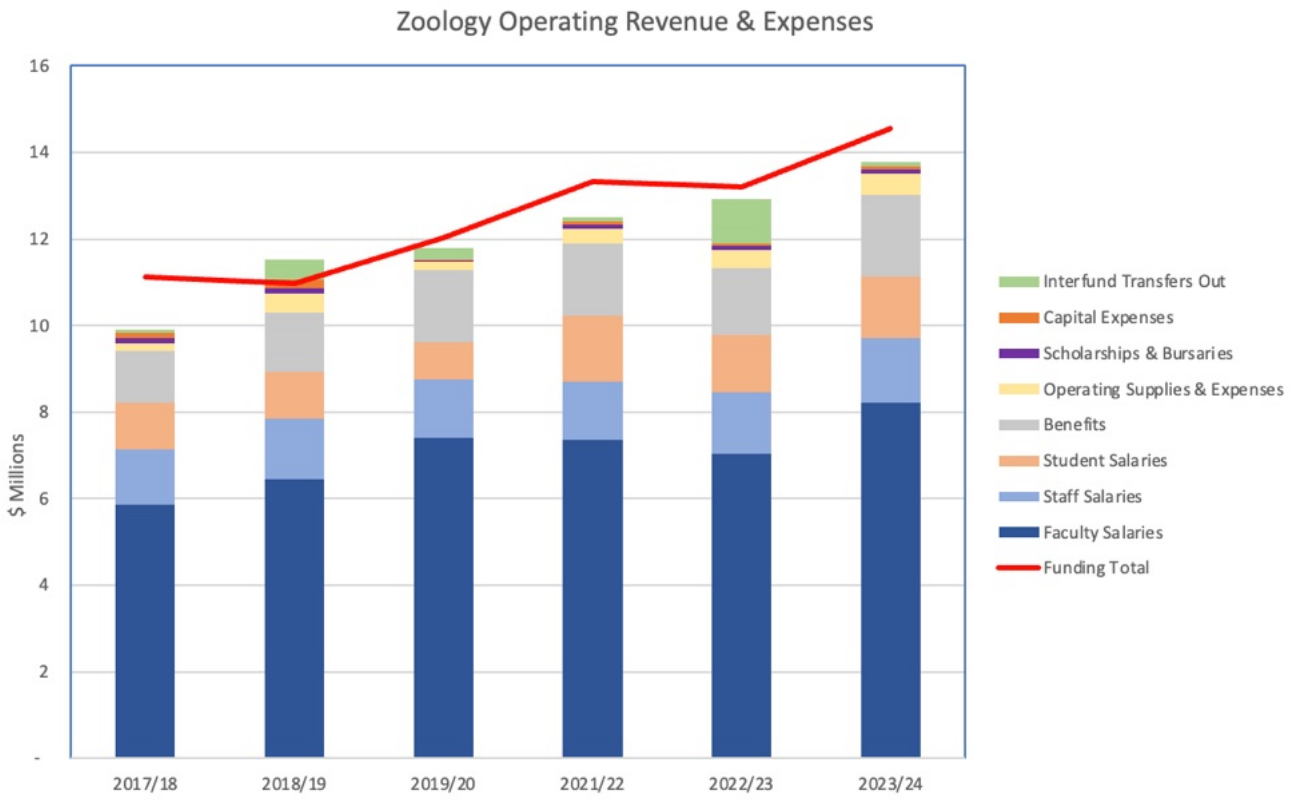
- applied for funding to initiate the development of programs, but funding was not awarded
- invited Indigenous students from courses to contribute and have had a few deliver knowledge on behalf of their families

Other actions that were taken by faculty in their undergraduate courses, include:

- class visits to the anthropology museum
- sharing a variety of personalized and meaningful land acknowledgements
- including/mentioning Indigenous contributions
- actively recruiting Indigenous students to the lab
- promoting and sharing books by Indigenous scholars with students

As a specific example of how Zoology faculty are integrating Indigenous perspectives into their classroom, in BIOL 180, Dr. Steinwand is using primary literature to teach the process of science while also illuminating the human dimensions of conservation. Indigenous-led conservation is part of this conversation. Dr. Steinwand is also working with an Indigenous student on discussions around decolonizing conservation and education, and they have been accepted into the Indigenous Undergraduate Research Mentorship Program, Office of Indigenous Strategic Initiatives.

Appendix 27: The Department of Zoology Operating Revenues and Expenses for 2017 to 2024.



Appendix 28: Zoology workload guidelines for Research, EL and Lecturers

DEPARTMENT OF ZOOLOGY

Workload Guidelines for Tenure-Track/Tenured Research Faculty

These Guidelines describe the Department's expectations and procedures concerning the workload of tenure-track and tenured research faculty.

Department of Zoology Research Faculty have three primary responsibilities: research, teaching and service. The department's expectation is that a normal annual Faculty workload will include contributions from all three areas of activity.
Faculty are expected to

- Seek and maintain an active research program and scholarly program
- Participate in undergraduate and graduate student education (including advising and supervising duties)
- Carry out their share of service work (committee and service assignments)

Annual Work Load:
During teaching semesters, faculty are expected to be active in teaching and service while continuing with their research enterprise including the supervision and mentoring of graduate students. During research semesters faculty members carry out research, continue to supervise their graduate students (and undergraduate directed studies or honours students), and fulfill service obligations.

Research: Responsibilities require faculty to maintain a program of research or scholarship through which they should aspire to a national or international reputation as scholars and promotion to the rank of Professor. Faculty are expected to be engaged in scholarly activity and have a continuous record of:

- Developing and maintaining an independent line of scholarly activity or demonstration of independent contributions to collaborative research
- Applying for competitive peer-reviewed grants to support research
- Publishing in peer-reviewed and internationally recognized media
- Obtaining independent, external research funding or demonstration of independent contributions to obtaining collaborative research funding
- Supervising the research of graduate students

Teaching: Responsibilities require faculty to teach undergraduate and graduate courses, and directly supervise and mentor graduate students. The standard course load is two undergraduate courses per year as it is recognized that graduate supervision represents a significant time investment across the entire year.

Faculty fully engaged in research activities, are expected to teach:

- One service course (includes: required core Biology courses and other key courses for the Biology program such as large enrolment upper year lecture courses and the required "Biology Laboratory Selection" courses)
- One speciality course

Faculty can also receive credit for teaching graduate modules

- 3 X 1 credit graduate modules can be applied for credit for one undergraduate course (with approval of Head)

A tenured research faculty member who is not engaged in research activity and is not supervising graduate students is expected to teach:

- five undergraduate courses
    - two in Winter Term 1
    - two in Winter Term 2
    - one in a Summer term

Faculty are encouraged to teach:

- Directed studies students
- Honours thesis students

Service: All faculty members are expected to contribute to service. Junior faculty (pre-tenure) will have a smaller service requirement than tenured faculty, with Full Professors expected to have the greatest service load. Service duties for the Department, Faculty and UBC are counted. Services duties for agencies outside of UBC may only be considered with the approval of the Department Head and Executive.

Joint appointments: For jointly appointed faculty the teaching and service load will be calculated as a percentage of the appointment and loads determined in collaboration with the Head of the other department. Work load expectations will be clearly outlined in the appointment letter. It is expected that over the course of the joint appointment that the faculty member will contribute to both service and teaching courses in the Biology program.

Procedures:

Research: Each faculty member is required to submit an annual report and an updated UBC CV for adjudication for merit. All CVs are viewed by the Head and a committee of peers as part of the annual merit assessment. Any faculty member whose contributions in research/scholarship and research trainee supervision over two successive years has been judged by the Head and the committee to be insufficient will meet with the Head. Possible actions could include:

a) meeting with mentor(s) and working towards re-establishing a research program and supervision of graduate students
b) expansion of other duties and a gradual transition to the full teaching load of five courses and/or increased service assignments

Teaching: The Department Head and the Associate Head of Biology are responsible for assigning the annual teaching duties. The Head must ensure that assignments accommodate the Biology programs curricular objectives, the Faculty's enrolment obligations and the University's commitment to support excellence in teaching and research. Teaching duties and requirements within the Biology program take precedence over those outside and teaching duties outside of the Biology program will be reviewed on an annual basis. The assignment of teaching loads will normally result from consultations with each faculty member through meetings with each

research group or individually at an annual meeting. Final responsibility resides with the Department Head.

Service: The Department Head is responsible for assigning service duties. Major service duties will be communicated to all faculty members to ensure in a fairness and transparency. Service duties will be tracked to ensure equitable distribution of duties to all faculty.

Reduced Teaching Loads:

Exceptions to the required teaching loads will be considered under the following circumstances:

- New faculty members will be awarded a reduced teaching load consisting of the equivalent of two undergraduate courses over their first five years in the Department.
- Faculty awarded research chairs but only when the terms of appointment prescribe teaching load reductions (i.e. Steacie Award)
- Faculty with externally-funded appointments or "buy outs" that have been negotiated with the Department Head and only if discussed with the Head **before** the funding is applied for or negotiated.
- Reduction of teaching may occur with the following parameters:
  - only one undergraduate course can be bought-out per year
  - buy outs are limited to three-year terms
  - buy outs must be funded at the standard rate ($20,000 per course) to cover replacement lecturer costs regardless of the source of funds (internal or external to UBC)
  - heavy service loads, such as graduate advisor or departmental Head or University Secondment can lead to teaching reductions with permission of the Head

Note: sabbatical and administrative leaves are independent of this policy.

Teaching Professional Expectations:

Faculty members are responsible for meeting all scheduled classes, for conducting and grading exams or evaluations associated with their classes, for making themselves accessible to students for consultation, on a timely, convenient and routinely-scheduled basis, and for carrying out their supervisory responsibilities in the best interests of their students.

Planned absences from scheduled classes that will not result in class cancellations should be communicated to the Head or Associate Head, well in advance. Unavoidable class cancellations or changes in time and place of class meetings, or the nature of class activities, should be communicated to students expeditiously. The disposition of course material missed through planned or unavoidable absences should be explained to students clearly.

Tenured faculty who in the judgment of the Department Head or Dean of Science have not contributed effectively as instructors, both in terms of classroom performance and will be required to undertake a program of appropriate remedial action. Any such program will be developed through consultation among the Dean, the Head, the Faculty Association and the faculty member.

DEPARTMENT OF ZOOLOGY

Workload Guidelines for Educational Leadership Faculty

These Guidelines describe the Department's expectations and procedures concerning the workload of tenure-track and tenured educational leadership faculty.

Department of Zoology Educational Leadership Faculty have three primary responsibilities: educational leadership, teaching and service. The department's expectation is that a normal annual Faculty workload will include contributions from all three areas of activity.

Faculty are expected to

- Seek and maintain scholarly activities in Educational Leadership
- Participate in undergraduate education, to contribute to the Department's curriculum diversity, and to foster students' critical and creative abilities.
- Carry out their share of service work (committee and service assignments)

Annual Work Load:

In terms when teaching faculty are not instructing classes they should be engaged in activities related to professional development and/or scholarship of teaching.

Educational Leadership: Responsibilities require faculty to maintain a program of scholarship through which they should aspire to a reputation as educational leaders and promotion to the rank of Professor of Teaching. Faculty are expected to be engaged in educational leadership activity and have a continuous record of:

- Dissemination of Educational Leadership research
- Attending/organizing workshops and conferences on scholarship of teaching and learning
- Participation in internal and external pedagogical grants
- Leading pedagogical innovation and pedagogical research
- Collaborative research with other faculty pertaining to scholarship of teaching and learning
- Research pertaining to course materials or course delivery

Teaching: Responsibilities require faculty to teach undergraduate courses. The standard course load is the equivalent of five undergraduate courses per year, with the opportunity for dedicated time for educational leadership reducing the course load to the equivalent of four undergraduate courses per year.

Faculty fully engaged in educational leadership activities are expected to teach for example:

- Four course equivalents in Winter Terms 1 and 2

OR

- Three course equivalents in Winter Terms 1 and 2
- One course equivalent in Summer Term

Faculty members not engaged in on going educational leadership activities are expected to teach:

- Two course equivalents in Winter Term 1
- Two course equivalents in Winter Term 2.
- One course equivalent in a Summer Term

Service: All tenure-track and tenured faculty members are expected to contribute to service. Junior faculty (pre-tenure) will have a smaller service requirement than tenured faculty, with Professors of Teaching expected to have the greatest service load. Service duties for the Department, Faculty and UBC are counted. Services duties for agencies outside of UBC may only be considered with the approval of the Department Head.

Procedures:

Educational Leadership: Each faculty member is required to submit an annual report and an updated UBC CV for adjudication for merit/PSA. A faculty member whose contributions in educational leadership over two successive years has been judged by the Head and the assessment committee to be insufficient to justify a normal teaching load will be required by the Head to increase the undergraduate teaching load and other service assignments.

Teaching: The Department Head and the Associate Head of Biology are responsible for assigning the annual teaching duties. The Head must ensure that assignments accommodate the Biology programs curricular objectives, the Faculty's enrolment obligations and the University's commitment to support excellence in teaching and research. Teaching duties and requirements within the Biology program take precedence over those outside and teaching duties outside of the Biology program will be reviewed on an annual basis. The assignment of teaching loads will normally result from consultations with each faculty member through meetings with each research group or individually at an annual meeting. Final responsibility resides with the Department Head.

For the purpose of defining teaching responsibilities, workload varies according to the type of teaching appointment held and workload is distributed in terms of course equivalents. The following are some examples of course equivalents.

- 3 credit lecture course = 1 course equivalent
- Coordination of a multiple section course (plus tutorials) = 1 course equivalent
- Science One = 2 course equivalents
- Lab component of Lecture + lab courses = 1 course equivalent
- Undergraduate Research Experience Labs
    - Large labs (Biol 331, 340, 341, 342, 363) = 2 course equivalents
    - Small labs = 1 course equivalent

Service: The Department Head is responsible for assigning service duties. Service duties will be communicated to all faculty members to ensure in a fairness and transparency. Service duties will be tracked to ensure equitable distribution of duties to all faculty.

Reduced Teaching Loads:

Exceptions to the required teaching loads will be considered under the following circumstances:

- Faculty with "buy outs" that have been negotiated with the Department Head. Reduction of teaching may occur with the following parameters:
    - only one undergraduate course can be bought-out per year
    - buy outs are limited to three-year terms

- buy outs must be funded at the standard rate ($20,000 per course) to cover replacement lecturer costs
- heavy service loads, such as Associate Head of Biology can lead to teaching reductions with permission of the Heads.

Dedicated Time for EL:

EL faculty will be provided with dedicated time for educational leadership. During the Winter term, it is expected that EL Faculty will discuss their plans for education research. The current format is a one page application for summer EL activities. Annually, teaching faculty will complete a summary of activities and present these at the Biology teaching retreat.

Teaching Professional Expectations:

Teaching faculty are responsible for meeting all scheduled classes, for conducting and grading exams or evaluations associated with their classes, for making themselves easily and frequently accessible to students for consultation on a timely, convenient and routinely-scheduled basis, and for carrying out their supervisory responsibilities in the best interests of their students.

Planned absences from scheduled classes that will not result in class cancellations should be communicated to the Head or Associate Head well in advance. Unavoidable class cancellations or changes in time and place of class meetings, or the nature of class activities, should be communicated to students expeditiously. The disposition of course material missed though planned or unavoidable absences should be explained to students clearly.

Tenured teaching faculty who in the judgment of the Department Head over a two-year period have not contributed effectively as teachers, both in terms of classroom performance and in terms of professional development and contribution to the scholarship of teaching and learning, according to the norms of the discipline, will be required to undertake a program of appropriate remedial action. Any such program will be developed through consultation among the Dean, the Head the faculty Association and the faculty member.

DEPARTMENT OF ZOOLOGY

Workload Guidelines for Lecturers

These Guidelines describe the Department's expectations and procedures concerning the workload of Lecturers.

Department of Zoology Lecturers have the one primary responsibility of teaching with the potential of service. The department's expectation is that lecturers:

- Participate in undergraduate education, to contribute to the Department's curriculum diversity, and to foster students' critical and creative abilities.

Annual Work Load:

Teaching: Responsibilities require faculty to teach undergraduate courses. The standard course load is the equivalent of seven undergraduate courses per year, with assigned service reducing the course load by one course equivalent per term.

Lecturers are expected to teach:

- Three course equivalents in Winter Term 1
- Three course equivalents in Winter Term 2
- One course equivalent in a Summer Term

Service: Service duties for the Department, Faculty and UBC are counted. For lecturers service duties will be assigned in lieu of teaching assignments on an annual basis with prior discussions with the Head or Associate Head.

Procedures:

Teaching: The Department Head and the Associate Head of Biology are responsible for assigning the annual teaching duties. The Head must ensure that assignments accommodate the Biology programs curricular objectives, the Faculty's enrolment obligations and the University's commitment to support excellence in teaching. Teaching duties and requirements within the Biology program take precedence over those outside and teaching duties outside of the Biology program will be reviewed on an annual basis. The assignment of teaching loads will normally result from consultations with each lecturer through meetings with each research group or individually at an annual meeting. Final responsibility resides with the Department Heads and Associate Head.

For the purpose of defining teaching responsibilities, workload varies according to the type of teaching appointment held and workload is distributed in terms of course equivalents:

- 3 credit lecture course = 1 course equivalent
- Coordination of a multiple section course (plus tutorials) = 1 course equivalent
- Science One = 2 course equivalents
- Lab component of Lecture + lab courses = 1 course equivalent
- Undergraduate Research Experience Labs
    - Large labs (Biol 331, 340, 341, 342, 363) = 2 course equivalents
    - Small labs = 1 course equivalent

Service: The Department Head is responsible for assigning service duties. Service duties will be communicated to all faculty members to ensure in a fairness and transparency. Service duties will be tracked to ensure equitable distribution of duties to

all faculty. Major service duties will be matched by a reduction in teaching duties. Standing committee chairs for example will result in a reduction of 1 course equivalent.

Teaching Professional Expectations:

Teaching faculty are responsible for meeting all scheduled classes, for conducting and grading exams or evaluations associated with their classes, for making themselves easily and frequently accessible to students for consultation on a timely, convenient and routinely-scheduled basis, and for carrying out their supervisory responsibilities in the best interests of their students.

Planned absences from scheduled classes that will not result in class cancellations should be communicated to the Head or Associate Head well in advance. Unavoidable class cancellations or changes in time and place of class meetings, or the nature of class activities, should be communicated to students expeditiously. The disposition of course material missed though planned or unavoidable absences should be explained to students clearly.

Tenured teaching faculty who in the judgment of the Department Head over a two-year period have not contributed effectively as teachers, both in terms of classroom performance and in terms of professional development and contribution to the scholarship of teaching and learning, according to the norms of the discipline, will be required to undertake a program of appropriate remedial action. Any such program will be developed through consultation among the Dean, the Head the faculty Association and the faculty member.