



Canadian Society of Zoologists
Soci t  Canadienne de Zoologie



Programme

The Local Organizing Committee is very thankful for the generous support from:



UNIVERSITY OF
SASKATCHEWAN



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College of Arts and Science



UNIVERSITY OF
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Department of Biology



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Western College of Veterinary Medicine



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Journal of
Experimental Biology

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YEARS OF
DISCOVERY

Journal of Experimental Biology (<http://jeb.biologists.org>) is the leading journal in comparative animal physiology. JEB focuses on the form and function of living organisms at all levels of biological organisation – from the molecular and subcellular to the integrated whole animal. Authors and readers reflect a broad interdisciplinary group of scientists who study molecular, cellular and organismal physiology in an evolutionary and environmental context. JEB also proudly sponsors the Holeton award and the Boutilier award.

Welcome from your Local Organizing Committee Co-Chairs

A warm prairie welcome to Saskatoon, Saskatchewan, the Paris of the Prairies, for the 61st Annual Meeting of the Canadian Society of Zoologists and the first in-person meeting since 2019! As we gather here, we acknowledge we are on Treaty 6 Territory and the Homeland of the Métis. We pay our respect to the First Nations and Métis ancestors of this place and reaffirm our relationship with one another. It has been too long since we have all been able to be together in one place and we are sure that you are all looking forward to reconnecting face to face. This meeting is on the beautiful campus of the University of Saskatchewan. Our banquet will be at the Remai Modern Public Art Museum that boasts exhibits and collections of multiple media styles and offers a wonderful view of the South Saskatchewan River.

The program starts on Monday with the NSERC sessions for Research funding, followed by a session for Student Scholarship, and the Education Workshop. This year's public ZET Lecture will be given by award winning author, Candace Savage and will focus on biodiversity in the urban environment. The Wednesday LOC Symposium is: Animal, Human and Environment Interactions: A University of Saskatchewan Perspective, presented by Drs. Emily Jenkins, Christy Morrissey, Winona Wheeler, and Tony Ruzzini. We are immensely grateful to the CSZ students, postdoctoral fellows, and faculty members from across Canada who are presenting at the exciting sessions for this meeting. These include oral presentations and poster presentations on Wednesday evening. The Trainee Network Mixer will follow the poster session at the nearby Louis Loft. The program also features talks by this year's award winners for graduate (PhD) research, early faculty and established faculty from across Canada. It has also been a pleasure to work with this year's CPB, PIE, CMD and IEE symposium organizers.

We are very grateful for the cheerful and tireless work of the LOC (Suraj Unniappan, Emily Jenkins, Nicole Webster, Anastasiia Nykonenko, and Cody Malone). This meeting could not have happened without the USask graduate student volunteers who contributed to every aspect of this conference, from the logo design to registration and everything in between. Neil Chilton, Grant McClelland, Kurt Gamperi and Brent Sinclair provided valuable and frequent advice during the past year. Allain Esquivel and Anastasiia Nykonenko developed and maintained the web page. Igor Jakab provided the registration process - Keith Tierney and Louise Milligan managed the accounting. Margaret Bieber coordinated meetings and food at Marquis Hall, Neeti Sharma and Leanne Twordik coordinated the on-campus residence, Antonia Kozak coordinated the Holiday Inn Express Hotel, and Kecia Batting coordinated the Parktown Hotel. The sponsors have been generous and enthusiastic. These include Company of Biologists (Journal of Experimental Biology), the Saskatchewan Health Research Foundation, the University of Saskatchewan – Department of Biology, Western College of Veterinary Medicine Associate Dean Research Office, Department of Veterinary Biomedical Sciences, College of Arts and Science Vice Dean Research Scholarly and Artistic Work, and the Vice Provost Faculty Relations. Room bookings for sessions was made possible by the Western College of Veterinary Medicine (Karen White and Erica Spracklin) and the College of Arts and Science (Philip Hitchings, Gail McKenzie, and Spencer Smit).

- Som Niyogi and Jack Gray (Co-Chairs)

Bienvenue de la part des coprésidents de votre comité d'organisation local

Bienvenue à Saskatoon, Saskatchewan, le Paris des Prairies, pour la 61^{ème} réunion annuelle de la Société Canadienne de Zoologie et la première réunion en personne depuis 2019! En nous rassemblant ici, nous reconnaissons que nous nous trouvons sur le territoire du Traité no 6 et sur la terre natale des Métis. Nous rendons hommage aux ancêtres des Premières nations et des Métis de ce lieu et réaffirmons notre relation mutuelles. Cela fait trop longtemps que nous n'avons pas pu nous réunir en un même lieu et nous sommes certains que vous êtes tous impatients de reprendre contact en personne. Cette réunion se déroulera sur le magnifique campus de l'Université de la Saskatchewan. Notre banquet aura lieu au Remai Modern Public Art Museum, qui présente des expositions et des collections de différents styles médiatiques et offre une vue magnifique sur la rivière Saskatchewan Sud.

Le programme commence le lundi avec les sessions du CRSNG sur le financement de la recherche, suivies d'une session sur les bourses d'études et de l'atelier sur l'éducation. Cette année, la conférence publique ZET sera donnée par Candace Savage, auteure primée, et portera sur la biodiversité dans l'environnement urbain. Le LOC symposium du mercredi est intitulé « Interactions entre l'animal, l'homme et l'environnement : Une perspective de l'université de Saskatchewan », présenté par les docteurs Emily Jenkins, Christy Morrissey, Winona Wheeler et Tony Ruzzini. Nous sommes extrêmement reconnaissants envers les étudiants, les boursiers postdoctoraux et les membres du corps professoral du CSZ de tout le Canada qui participent aux sessions passionnantes de cette réunion. Ces sessions comprennent des présentations orales et des présentations d'affiches le mercredi soir. La réunion du réseau des stagiaires suivra la session d'affichage au Louis Loft, situé à proximité. Le programme prévoit également des présentations par les lauréats des prix de cette année pour la recherche de troisième cycle (PhD), par des professeurs en début de carrière et par des professeurs établis de tout le Canada. Ce fut également un plaisir de travailler avec les organisateurs des symposiums CPB, PIE, CMD et IEE de cette année.

Nous sommes très reconnaissants du travail joyeux et infatigable du LOC (Suraj Unniappan, Emily Jenkins, Nicole Webster, Anastasiia Nykonenko et Cody Malone). Cette réunion n'aurait pas pu avoir lieu sans les étudiants diplômés bénévoles d'USask qui ont contribué à tous les aspects de cette conférence, de la conception du logo à l'inscription et tout ce qui se trouve entre les deux. Neil Chilton, Grant McClelland, Kurt Gamperi et Brent Sinclair ont fourni des conseils précieux et fréquents au cours de l'année écoulée. Allain Esquivel et Anastasiia Nykonenko ont développé et maintenu la page web. Igor Jakab a assuré le processus d'inscription - Keith Tierney et Louise Milligan ont géré la comptabilité. Margaret Bieber a coordonné les réunions et la restauration à Marquis Hall, Neeti Sharma et Leanne Twordik ont coordonné la résidence sur le campus, Antonia Kozak a coordonné l'hôtel Holiday Inn Express et Kecia Batting a coordonné l'hôtel Parktown. Les sponsors ont été généreux et enthousiastes. Il s'agit notamment de Company of Biologists (Journal of Experimental Biology), de l'Université de Saskatchewan - Département de biologie, du Western College of Veterinary Medicine Associate Dean Research Office, du Département des Sciences Biomédicales Vétérinaires, du College of Arts and Science Vice Dean Research Scholarly and Artistic Work, et du Vice Provost Faculty Relations. La réservation de salles pour les sessions a été rendue possible par le Western College of Veterinary Medicine (Karen White et Erica Spracklin) et le College of Arts and Science (Philip Hitchings, Gail McKenzie et Spencer Smit)

- Som Niyogi et Jack Gray (coprésidents)

Legend:

CPB – Comparative Physiology and Biochemistry

IEE – Integrative Ecology and Evolution

PIE – Parasitology, Immunology and Environment

CMD – Comparative Morphology and Development

LOC – Local Organizing Committee

ZET – Zoology Education Trust

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Welcome to Saskatoon

Saskatoon is the largest city in Saskatchewan, with a population of approximately 320,000 and provides a large diversity of activities while maintaining a warm prairie welcome. Please check out the City of Saskatoon home page (<https://www.saskatoon.ca/>) for information on available activities. Public transportation in Saskatoon is moderately convenient. However, the city core is easily walkable and there is the Meewasin trail that runs along the South Saskatchewan River. Please see the included city map for details. The meeting will be held on the University of Saskatchewan campus and maps, signs, and volunteers will be available to help navigate the locations of conference events. We are striving to making this a family-friendly meeting and are organizing options for those that choose to bring their families.

Location and Climate:

Saskatoon is 52.15790176° N, 106.6702° W and is 482 M above sea level. Located in the center of the Canadian prairies, Saskatoon is classified as a cold semi-arid climate, with warm summers and long, cold winters. The daily temperatures in May range from a high of 16-21°C and a low of 2-8°C.

Safety and security:

Saskatoon is a fairly safe city, but as in any city common sense rules apply. The USask campus and hotels have security on site if needed. Information related to COVID-19 considerations during the conference can be found on the meeting webpage (<https://conferences.usask.ca/csz-scz2023/covid.php>).

Taxis to and from Airport:

Saskatoon has access to Uber ride services and also has a number of taxi services, including:

Captain Taxi: 306-242-0000

Comfort Cabs: 306-242-6666

YXE City Cabs: 306-500-2339

Saskatoon Radio Cabs: 306-242-2626

Hotels may also have shuttle to and from the airport. Please contact your hotel directly.

Bienvenue à Saskatoon

Saskatoon est la plus grande ville de la Saskatchewan, avec une population d'environ 320 000 habitants et offre une grande diversité d'activités tout en conservant un accueil chaleureux dans les prairies. Veuillez consulter la page d'accueil de la ville de Saskatoon (<https://www.saskatoon.ca/>) pour obtenir des informations sur les activités disponibles. Les transports en commun à Saskatoon sont modérément pratiques. Cependant, le centre-ville est facilement accessible à pied et il y a le sentier Meewasin qui longe la rivière Saskatchewan Sud. Veuillez consulter le plan de la ville inclus pour plus de détails. La réunion aura lieu sur le campus de l'Université de la Saskatchewan et des cartes, des panneaux et des bénévoles seront disponibles pour aider à naviguer vers les lieux des événements de la conférence. Nous nous efforçons d'en faire une réunion conviviale pour les familles et organisons des options pour ceux qui choisissent d'amener leur famille.

Emplacement et climat:

Saskatoon est à 52,15790176° N, 106,6702° O et à 482 M au-dessus du niveau de la mer. Située au centre des prairies canadiennes, Saskatoon est classée comme un climat semi-aride froid, avec des étés chauds et de longs hivers froids. Les températures quotidiennes en mai varient entre un maximum de 16-21°C et un minimum de 2-8°C.

Sûreté et sécurité:

Saskatoon est une ville assez sûre, mais comme dans toute ville, des règles de bon sens s'appliquent. Le campus USask et les hôtels ont une sécurité sur place si nécessaire. Les informations relatives aux considérations liées à la COVID-19 lors de la conférence sont disponibles sur la page Web de la réunion (<https://conferences.usask.ca/csz-scz2023/covid.php>).

Taxis depuis et vers l'aéroport:

Saskatoon a accès aux services de transport Uber et propose également un certain nombre de services de taxi, notamment:

Capitaine Taxi: 306-242-0000

Cabines confort: 306-242-6666

Cabines urbaines YXE: 306-500-2339

Cabines radio de Saskatoon: 306-242-2626

Les hôtels peuvent également avoir une navette vers et depuis l'aéroport. Veuillez vous adresser directement à votre hôtel.

Welcome from the CSZ President

It is my great pleasure to welcome you all to the first in-person CSZ meeting since our last gathering in 2019 in Windsor! It has been a tumultuous time since then, and I'm sure many of you are as excited as I am to see colleagues and friends again after what feels like a very long time indeed. I'm grateful to be working on Treaty 7 territory and in the home of the Metis Nation of Alberta, Region 3 as I write you this message. I look forward to joining you all on Treaty 6 and in the Homeland of the Metis for our meeting.

I'd like to begin with a huge thank you to our Saskatoon Local Organizing Committee led by Jack Gray and Som Niyogi, who have had to wait to host their meeting since it was canceled in 2020. We have finally arrived and it's great to be here! I also extend my deepest gratitude to our 2021 and 2022 Virtual Organizing Committee teams, led by Graham Scott and Grant McClelland for 2021 and Nicolas Pichaud and Simon Lamarre for 2022, who hosted two of the very best online meetings I have had the pleasure of attending. Thanks to all who helped keep our Society connected during these difficult years.

It has been my pleasure to be your President for 2022-2023, watching as our Society continues to grow and evolve. New initiatives abound, with particular highlights being the ongoing development of a new Society website under the guidance of our Communications Officer, Katie Marshall, and a string of excellent blog posts under the leadership of our Student/PDF Section. Highlights of this year's Annual Meeting will include the Biology Communication Workshop for early career researchers, led by Pat Wright, Brittney Borowiec, and Gary Anderson, the Caregiver Breakfast, organized by Sandra Fehsenfeld, and the LOC Symposium entitled Animal, Human and Environment Interactions: A University of Saskatchewan Perspective, among many other exciting events.

I hope that everyone is able to enjoy a rejuvenating and collegial week as we celebrate the hard work and achievements of our Society members together in Saskatoon for our 62rd Annual Meeting. I look forward to catching up with many of you during this time. Have a great meeting!

Heather Jamniczky

President 2022-2023

Mot de Bienvenue du Président de la SCZ

C'est avec grand plaisir que je vous souhaite la bienvenue à la première réunion en personne de la SCZ depuis notre dernier rassemblement en 2019 à Windsor! Cela a été une période tumultueuse depuis lors, et je suis sûr que beaucoup d'entre vous sont aussi excités que moi de revoir des collègues et des amis après ce qui semble être très long. Je suis reconnaissant de travailler sur le territoire du Traité 7 et chez la Nation métisse de l'Alberta, Région 3, au moment où je vous écris ce message. J'ai hâte de vous rejoindre tous sur le Traité 6 et dans la patrie des Métis pour notre réunion.

J'aimerais commencer par un immense merci à notre comité organisateur local de Saskatoon dirigé par Jack Gray et Som Niyogi, qui ont dû attendre pour organiser leur réunion depuis qu'elle a été annulée en 2020. Nous sommes enfin arrivés et c'est formidable d'être ici ! J'exprime également ma plus profonde gratitude à nos équipes du comité d'organisation virtuel 2021 et 2022, dirigées par Graham Scott et Grant McClelland pour 2021 et Nicolas Pichaud et Simon Lamarre pour 2022, qui ont animé deux des meilleures réunions en ligne auxquelles j'ai eu le plaisir d'assister. Merci à tous ceux qui ont aidé à garder notre Société connectée pendant ces années difficiles.

J'ai eu le plaisir d'être votre président pour 2022-2023, en observant la croissance et l'évolution de notre Société. Les nouvelles initiatives abondent, avec en particulier le développement continu d'un nouveau site Web de la Société sous la direction de notre agente des communications, Katie Marshall, et une série d'excellents articles de blog sous la direction de notre section étudiant/PDF. Les faits saillants de la réunion annuelle de cette année comprendront l'atelier de communication sur la biologie pour les chercheurs en début de carrière, dirigé par Pat Wright, Brittney Borowiec et Gary Anderson, le petit-déjeuner des aidants, organisé par Sandra Fehsenfeld, et le symposium du COL intitulé Interactions animales, humaines et environnementales: Une perspective de l'Université de la Saskatchewan, parmi de nombreux autres événements passionnants.

J'espère que tout le monde pourra profiter d'une semaine rajeunissante et collégiale alors que nous célébrons ensemble le travail acharné et les réalisations des membres de notre Société à Saskatoon pour notre 62e assemblée annuelle. J'ai hâte de rattraper beaucoup d'entre vous pendant cette période. Bonne réunion !

Heather Jamniczky

Président 2022-2023

General Information / Informations Générales

Conference wifi

We have arranged for delegates to have internet access via the campus wifi. Please log in with the following information:

Network: UofS Guest

Username: csz2023

Password: zoosask1

Instructions: <https://wiki.usask.ca/display/public/ISDKB/How+do+I+connect+to+the+uofs-guest+Wireless+Network>

Delegates may also use UofS Public wifi network, for which no username and password are required.

Instructions: <https://wiki.usask.ca/pages/releaseview.action?pageId=1575157937>

Social Media Information

For additional information please refer to the CSZ official website: <https://conferences.usask.ca/csz-scz2023/index.php>

Please follow the CSZ official social media accounts on Twitter and Instagram:



@CSZ_Sask2023



@csz_2023

Please use **#CSZ2023** hashtag when posting photos on social media.

Emergency Contact Numbers:

- **Call 911 for general emergency** (police, fire, and ambulance)
- On campus, call 306 966 5555 for emergency assistance

Hospitals:

- Royal University Hospital: USask campus, 103 Hospital Dr, Saskatoon (306-655-1000).
- City Hospital: 701 Queen St, Saskatoon (306- 655-8000).
- St. Paul's Hospital: 1702 20th St W, Saskatoon (306-655-5000).

Registration desk: WCVM (mornings) and Marquis Hall (afternoons and evenings) Check-In, payments, inquiries:

- Monday 12:00 -19:00
- Tuesday 08:00 -18:00
- Wednesday 08:00 -18:30
- Thursday 08:00 -13:15

Note: Credit card is preferred for payments for any conference registration fees or other purchases. Marquis Hall takes debit, credit cards, or cash for the cash bars.

Presentations:

Talks:

- Talks will be held in several rooms at the Western College of Veterinary Medicine and Arts room 143. Please refer to schedules and maps, and signage. Rooms will be equipped with PC computers running Microsoft PowerPoint.
- No other media formats (e.g. slides) or software will be available, and participants will not be able to connect their personal computers to the projectors.
- You should arrive in the session room at 8 AM on the day of your presentation to upload your presentation file on the computer. An on-site volunteer will assist you in uploading your presentation.
- Please be in your session room at least 15 minutes before the beginning of your session and introduce yourself to the session chair(s).

Posters:

Poster orientation should be portrait, NOT landscape and the maximum size should be: (90 cm [35 in.] wide by 110 cm [43 in.] high).

- The poster session runs from 6 to 8 PM, May 17th in the Garry Room, Marquis Hall.
- Presenters are expected to attend their poster for their assigned hour during the poster session to discuss their work with attendees visiting your poster.
 - You will be assigned a poster number, which can be found in the CSZ Annual Meeting Program book.
 - You must set up your poster on the poster board displaying the assigned poster number.
 - Your number will determine your presentation time: 6 to 7 PM for even-numbered posters, 7 to 8 PM for odd numbered posters.
- Presenters are responsible for the setup and take-down of the poster.
 - Poster set-up time: 2 to 2:30 PM
 - Poster take-down time: 8 to 8:30 PM
 - Double-sided Velcro will be provided in the exhibition hall, so you can hang your poster.
 - Posters that are not removed by the end of the day will be removed and destroyed.
- The LOC cannot guarantee access to any on-site printing facilities, and we have not partnered with any local printing vendors in Saskatoon.

Accommodations:

Please see the conference website for information on accommodations (<https://conferences.usask.ca/csz-scz2023/accommodation.php#top>)

Bank locations:

ATM locations on campus:

Royal Bank, second floor of Agriculture Building, next to Agriculture Café

Place Riel, main floor, close to north entrance:

Royal Bank, Affinity Credit Union, Bank of Montreal

Place Riel, downstairs, at Circle K in food court

Places to eat:

On campus grab and go:

Agriculture Café (8 am -2 pm)

Arts Café (8am -2 pm)
Arts Booster Juice (10 am – 2 pm)
Starbucks (Murray library building) (8 am-4 pm)
Tim Hortons (Arts tunnel, Geology, and Marquis Hall) (8 am-3 pm)
Marquis Culinary Centre (many options for lunch) 11 am –1:30 pm
Lower Place Riel food court (many options for snacks and lunch, some open until 6 pm: Treats, Crepe Bistro, Harvey's, Purblendz, Umi Sushi, Flaming Wok, Mama's Pizza and Pasta).

Near campus, walking distance:

Dairy Queen Grill and Chill 1418 College Drive
Louis', Lower Memorial Union Building, [menu](#)
Louis' Loft, Upper Memorial Union Building, lunch and coffee options
Filosophi Wise Cuisine (sit down lunch and dinner) 414 Cumberland Ave N. [menu](#)

Near campus, short drive or longer walk:

Preston Crossing (north and east of the University, on Preston Ave) hosts a range of the usual suspects, including Starbucks, Press'd Sandwich Shop, Cora Breakfast and Lunch, Bento Sushi...

Around town:

20th Street between Ave A and E hosts a range of dining options, including:
Picaro [menu](#)
Odd Couple (vegan options) [menu](#)
Primal [menu](#) (\$\$\$)

Broadway area is another great place to drink and dine, including:

Una pizza and wine [menu](#)
Yard and Flagon pub [menu](#)
Calories [menu](#)
Odlá [menu](#)

If you want to range further afield for breakfast, recommended bakeries and cafes:
Broadway Café, Park Café, Earthbound bakery (take out only), Night Oven bakery

Local souvenirs:

Check out Saskmade on 8th Street (<https://www.saskmade.ca/>)
There are also gift shops at the Remai Modern Art Gallery (site of banquet, but only open til 5 pm), Wanuskewin Heritage Park (site of field trip), and the USask Bookstore (Marquis Hall and Preston Crossing locations)

Multifaith Room:

If you require a private space in the mornings, please contact one of the members of the Local Organizing Committee or a volunteer and we can arrange a space for you in WCVM. If you require space in the afternoon, Marquis room 105 will be available and can be accessed via room 104. Signs will be posted on each room.

Lactation Room:

If you require a private space, please contact one of the members of the Local Organizing Committee or a volunteer and we can arrange a space for you.

Paid Public Parking:

University Campus Parking – Link to an Interactive Map: <https://maps.usask.ca/>

Public Parking Map: https://maps.usask.ca/map-nav/campus_maps/uofsm4c.pdf

Paid public parking lots P1, P11 and P13 are closer to the Marquis Hall.

Paid public parking lots P4, P5 and P16 are closer to the Western College of Veterinary Medicine.

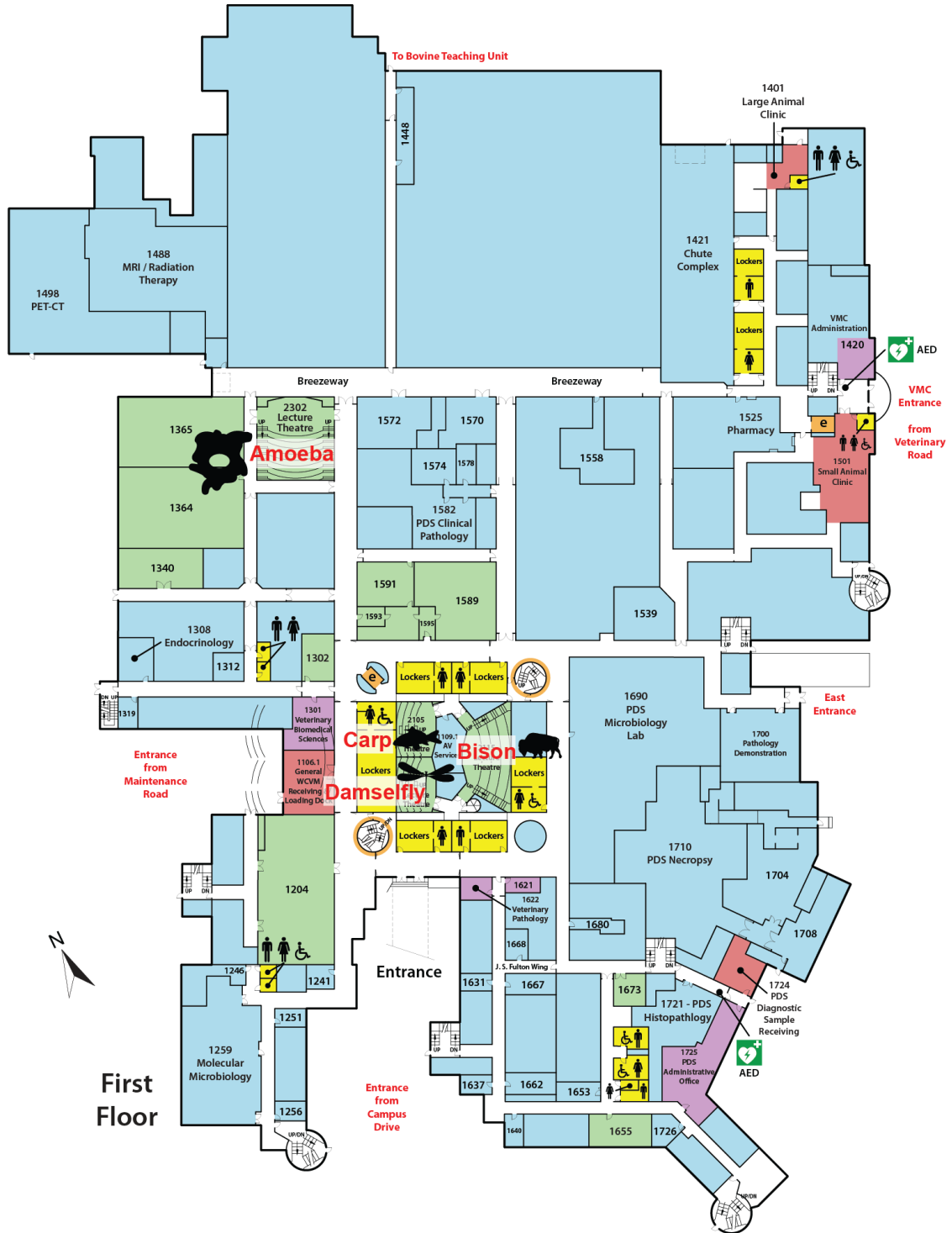
A small number of metered parking spots (limited duration parking) are also available in front of the WCVM and on one side of the Agriculture Building (across the WCVM). This is not guaranteed, and we encourage you to park at a dedicated public parking space that allows longer term parking. This is cheaper and guarantees longer duration parking.

WCVM First Floor Map (access through the pathway adjacent to the ramp)

(Concurrent sessions will be held here)

Four of the six venues are accessible from the first floor... Amoeba= 2302, Bison = 2115, Carp = 2105, Damselfly = 2104,

Western College of Veterinary Medicine



Program at a Glance

Time	15-May Monday	16-May Tuesday	17-May Wednesday	18-May Thursday	19-May Friday	
7:30		Caregivers Breakfast [F - WCVM 2102]		[WCVM]		
8:00						
8.30	Prof. John Chang Symposium WCVM 2115	CSZ Council Meeting [Montcalm, Marquis Hall]	Toxicology 1	Toxicology 2	CMD Symposium	
				Hypoxia 1	Hypoxia 2	Endocrinology 1
9.00				Thermal Physiology-1	Thermal Physiology-2	Thermal Physiology-3
				CMD Vertebrates	PIE Feeling Itchy?	Neurobiology and Behaviour
9.30				IEE Birds and Mammals	IEE Invertebrates	Respiratory and Circulation
				[WCVM]	[WCVM]	PIE Snails and such
10.00				Coffee Break [B - WCVM 2115]	Coffee Break [B - WCVM 2115]	Coffee Break [B - WCVM 2115]
10.30				CPB Symposium	William S. Hoar Award student talks [Arts 143]	IEE Symposium
				IEE Aquatic		Thermal Physiology-4
11.00				CMD Invertebrates		Endocrinology 2
				PIE Land and Sea		Wardle Lecture
11.30				[WCVM]		Gut physiology
12.00				[WCVM]		
12.30				Luncheons PIE [Exeter] CMD [Montcalm] IEE [Selkirk] Marquis Hall		
13.00		AGM Luncheon [Garry, Marquis Hall]	CPB Luncheon [Exeter, Marquis Hall]	OPEN		
13.30				PIE Symposium		
14.00		OPEN	OPEN	CPB Miscellaneous Osmoregulation		
14.30		President's Award Post Doc Talks [ARTS 143]	LOC Symposium [ARTS 143]	Toxicology 3		
				Endocrinology 3		
15.00	OPEN				[WCVM]	
15.30	Education Workshop [Exeter, Marquis Hall]			Coffee Break [Arts 143]		
16.00		Coffee Break [Arts 143]		Boutilier New Faculty Award Lecture Ken Jeffries [ARTS 143]		
16.30	OPEN	Cameron Lecture Jackie Lebenzon [ARTS 143]	Coffee Break [Arts 143]			
17.00	Welcome Reception [Garry/Palliser, Marquis Hall]	Fry Medal Lecture Kathleen Gilmour [ARTS 143]	EDI Workshop Navigating Authorship [ARTS 143]	OPEN		
17.30						
18.00	Zoological Education Trust Public Lecture Candace Savage [ARTS 143]	Post-Fry Lecture Mixer [Garry, Marquis Hall]	Poster Session [Garry, Marquis Hall] Meet the JEB Editors	BANQUET [Remai Art Gallery] 6 PM-12 AM		
18.30						
19.00						
19.30						
20.00						
20:30			Trainee Network Mixer [Louis Pub]			
21.00						

Tour:
Wanuskewin
Heritage
park

Monday, May 15th

8:30-13:00	Council Meeting / Réunion du conseil	Montcalm Room, Marquis Hall
9:00-15:00	Prof. John Chang Symposium	Bison WCVM 2115
13:00-13:30	Break / Pause	
13:30-15:00	NSERC Workshop for Faculty / Atelier du CRSNG pour les professeurs Gary Anderson and Kim Cote	Exeter Room, Marquis Hall
	NSERC Workshop for Students / Atelier du CRSNG pour les étudiants Phil McLoughlin	
15:00-15:30	Break / Pause	
15:30-16:30	Education Workshop / Atelier d'éducation Mitch Price, Jack Gray, Paul Dick	Exeter Room, Marquis Hall
16:30-17:00	Break / Pause	
17:00-18:30	Welcome Reception / Réception de bienvenue	Garry Room, Marquis Hall
18:30-20:00	ZET Lecture / Conférence FEZ and mixer Candace Savage	Arts 143

Monday / lundi
13:00-15:00

NSERC Workshops / Ateliers du CRSNG

13:30-14:15 - NSERC Grant Information Session for Faculty / Atelier du CRSNG pour les professeurs

Location: Exeter Room, Marquis Hall

Gary Anderson (University of Manitoba) and Kim Coté (NSERC)

The faculty workshop will be attended by representatives from NSERC EG 1502 – Biological Systems and Functions as well as past and current EG 1502 members. The workshop will provide information from NSERC and there will be a mock Discovery Grant evaluation.

L'atelier du corps professoral réunira des représentants du CRSNG EG 1502 - Systèmes et fonctions biologiques ainsi que des membres passés et actuels du cours EG 1502. L'atelier fournira de l'information du CRSNG et il y aura une simulation d'évaluation de la subvention à la découverte.

14:15-15:00 - NSERC Information Session for Students and Post-Doctoral Fellows

Location: Exeter Room, Marquis Hall

Phil Mcloughlin (University of Saskatchewan)

The student workshop will be attended by representatives from NSERC Scholarships and Fellowships and past members of the Scholarships and Fellowships Selection Committee. The workshop will provide information about the program and strategies for completing a successful proposal.

L'atelier étudiant réunira des représentants des bourses d'études et de recherche du CRSNG et d'anciens membres du comité de sélection des bourses d'études et de recherche. L'atelier fournira des renseignements sur le programme et les stratégies pour compléter une proposition réussie.

**Monday / lundi
15:30-16:30**

Education Workshop / Atelier d'éducation

Location: Exeter Room, Marquis Hall

Mitch Price (the College Board), Jack Gray (University of Saskatchewan), Paul Dick (University of Saskatchewan)

The title for this year's workshop is "**Catch and Release: Student Progression in Biology - from High School to Undergraduate Convocation and Beyond....**" The theme of the workshop in the context of the meeting is "how do we build a zoologist?" We will discuss how students entering undergraduate programs are prepared, how their undergraduate programs progress, and how they will continue as learners in life beyond their degree. The workshop has been developed by Dr. Mitch Price (Curriculum and Assessment, The College Board), Dr. Jack Gray (Professor of Biology, University of Saskatchewan), and Paul Dick (Lab Coordinator, Department of Biology, University of Saskatchewan).

Le titre de l'atelier de cette année est "**Catch and Release: Student Progression in Biology - from High School to Undergraduate Convocation and Beyond....**" Le thème de l'atelier dans le cadre de la rencontre est « comment construit-on un zoologiste? » Nous discuterons de la façon dont les étudiants entrant dans les programmes de premier cycle sont préparés, de la progression de leurs programmes de premier cycle et de la manière dont ils continueront à apprendre dans la vie au-delà de leur diplôme. L'atelier a été élaboré par le Dr Mitch Price (Curriculum and Assessment, The College Board), Dr Jack Gray (professeur de biologie, Université de la Saskatchewan) et Paul Dick (coordonnateur de laboratoire, Département de biologie, Université de la Saskatchewan).

**Monday / lundi
17:00-18:30**

ZET Lecture / Conférence FEZ

Location: Garry Room, Marquis Hall

Order of Proceedings

Welcome:

- LoC Introduction by Nicole Weber (University of Saskatchewan)
- Remarks by Som Niyogi & Jack Gray, LoC Co-chairs
- Baljit Singh, University of Saskatchewan Vice President Research (introduced by Emily Jenkins)

Welcome to Conference and the ZET program: Heather Jamniczky, (University of Calgary) CSZ President

Location: ARTS 143

ZET Lecture

Introduction: Suraj Unniappan (University of Saskatchewan)

ZET Lecture: Candace Savage (Award-winning author)

“Bringing Back the Buzz: Cities and Biodiversity”



Candace Savage was born in the Peace River Country of northern Alberta and educated at the University of Alberta but saw the light and moved one province east half a lifetime ago. She is the award-winning author of more than two dozen books including *_Strangers in the House_* and *_Hello, Crow!_*, both published in 2019. Her previous title, *A Geography of Blood (2012)* won three Saskatchewan Book Awards, plus the Hilary Weston Writers’ Trust Prize for Nonfiction, and was featured by the Saskatchewan Library Association for their One Book One Province project in March 2020. She shares her time between Eastend and Saskatoon, Saskatchewan.

Tuesday, May 16th

7:30-8:30	Caregivers Breakfast	Frog (WCVM 2102)
8:30-10:00	Contributed Sessions	
	CMD - Vertebrates (CMD1)	Carp WCVM 2105
	Toxicology 1 – Invertebrates (CPB Tox1)	Eider WCVM 2103
	Hypoxia 1 – Fish (CPB Hypox1)	Ameoba WCVM 2302
	Thermal Physiology 1 (CPB Therm1)	Damselfly WCVM 2104
	IEE – Birds and Mammals (IEE1)	Bison WCVM 2115
10:00-10:30	Break / Pause	
10:30-12:00	CPB Symposium / Symposium du PCB Paul Craig	Ameoba WCVM 2302
	Contributed Sessions	
	IEE – Aquatic (IEE2)	Bison WCVM 2115
	CMD - Invertebrates (CMD2)	Carp WCVM 2105
	PIE - Land and Sea (PIE1)	Damselfly WCVM 2104
12:30-14:00	Annual General Meeting Lunch / Dîner AGA	Garry Room, Marquis Hall
14:30-14:30	Break / Pause	
14:30-16:00	President's Award / Prix du Président Best Post-Doctoral Fellow Oral Presentation	Arts 143
16:00-16:30	Break / Pause	
16:30-17:30	Cameron Lecture / Conférence Cameron Jackie Lebenzon	Arts 143
17:30-18:30	Fry lecture / Conférence Fry Kathleen Gilmour	Arts 143
18:30-21:00	Post- Fry lecture Mixer / Réception de la conférence Fry	Garry Room, Marquis Hall

Tuesday / mardi
08:30- 10:00
Contributed Sessions / Sessions Contribuées

CMD1 - Vertebrates

Location: Carp – WCVI 2105

Room Chair: Brain Eames

CMD1-1 08:30	Han, L. , Standen, E. M. University of Ottawa Quantitative analysis of the morphology-function relation in the armour of the basal ray-finned fish, <i>Polypterus senegalus</i>
CMD1-2 08:45	Franz-Odendaal, T.A. , Carvajal-Agudelo. J.D., Eaton J. Mount Saint Vincent University Assessment of the effects of simulated microgravity using a 3D clinostat on adult and larval zebrafish bone
CMD1-3 09:00	Lucas, K. N. , Wehrly, K. E., Alofs, K. M. University of Calgary Environmental Gradients and Swimming Morphology as Driving Factors of Inland Lake Fish Abundances
CMD1-4 09:15	Skandalis, D.A. , Baliga, V.B., Goller, B., Altshuler D.L. Johns Hopkins University Wing deformations in steady and maneuvering hummingbird flight
CMD1-5 09:30	Duclos, K.K. , Grünbaum, T., Angers, B., Cloutier, R., Jamniczky, H. A. University of Calgary Head, girdles, knees and toes: Morphological and topological variation in the pectoral girdle across the <i>C. eos-neogaeus</i> hybridization complex.
CMD1-6 09:45	Miyashita, T. , Coates, M. I., Tietjen, K., Gueriau, P., Janvier, P. Canadian Museum of Nature Anatomy of the Head-trunk Interface across the Origin of Vertebrate Jaw

Tuesday / mardi
08:30- 10:00
Contributed Sessions / Sessions Contribuées

CPB - Toxicology 1- Invertebrates

Location: Eider – WCVM 2103

Room Chair: Rachel Parkinson

Tox1-1 08:30	Klaczek, C. E. , Glover, C. N., Goss, G. G. University of Alberta Mechanism of selenite uptake in the water flea, Daphnia magna
Tox1-2 08:45	Farajizadeh, A. , Goss, G. G. University of Alberta Potential of the PFOA uptake in Daphnia (Daphnia magna) by TiO₂ nanoparticles
Tox1-3 09:00	Stewart, C.B. , Lowes, H.M., Griffin, R.A., Gauthier, P.T., Garman, E.R., Schlekot, C.E., Middleton, E.T., Alessi, D.S., Crémazy, A., Blewett, T.A. University of Alberta Assessing Aquatic Invertebrate Nickel Sensitivity under Arctic Exposure Scenarios
Tox1-4 09:15	Issac, F.A. , Lowes, H., Farner, J.M., Blewett, T.A. University of Alberta Investigating the potential toxicity of copper nanoparticles on Daphnia magna from agricultural run-off
Tox1-5 09:30	McCuaig, J.D. , Frank, R.A., Blewett, T.A. University of Alberta Assessing the mechanism of toxicity from naphthenic acids isolated from oil sands process-affected water in Daphnia magna
Tox1-6 09:45	Boyd, A. , Martin, S., Legge, A., Blewett, T. A. University of Alberta Are sunscreens better together? A comprehensive comparison of individual ultraviolet filters and off-the-shelf sunscreens and their effects on Daphnia magna

Tuesday / mardi
08:30- 10:00
Contributed Sessions / Sessions Contribuées

CPB - Hypoxia 1- Fish

Location: Amoeba – WCVL 2302

Room Chair: Graham Scott

Hypox1-1 08:30	Empty
Hypox1-2 08:45	Leonard, E. L. , Weaver, F. E., Nurse, C. A. Wilfrid Laurier University Lactate sensing by neuroepithelial cells isolated from the gills of killifish (<i>Fundulus heteroclitus</i>)
Hypox1-3 09:00	Wahl, R. C. , Morash, A. J. Mount Allison University Does chronic hypoxia elicit a whole-animal ketogenic response in brook trout (<i>Salvelinus fontinalis</i>)?
Hypox1-4 09:15	Negrete Jr., B. , Ackerly, K.L., Esbaugh, A. J. University of British Columbia Hypoxia-acclimation does not improve recovery from exhaustive exercise in a marine teleost
Hypox1-5 09:30	Ducros, L. , Lavoie-Rochon, A.S., Cohen, A.M., Pichaud, N., Lamarre, S. G. Université de Moncton Arctic char dealing with diel oxygen fluctuations: a fish that is not short of breath?
Hypox1-6 09:45	Empty

Tuesday / mardi
08:30- 10:00
Contributed Sessions / Sessions Contribuées

CPB - Thermal Physiology 1- Insects

Location: Damsely – WCV 2104

Room Chair: Katie Marshall

Therm1-1 08:30	Toxopeus, J. , Dowle, E.J., Andaloori, L., Ragland, G.J. St Francis Xavier University How do overwintering insects keep track of time? The impacts of temperature on apple maggot fly diapause
Therm1-2 08:45	van Oirschot, M. , Toxopeus, J. St Francis Xavier University The Role of Cytoskeletal Structure in Freeze-Tolerant Crickets
Therm1-3 09:00	Rokosh, S. E. , Walters, R., Kaiser, G., Toxopeus, J. St Francis Xavier University Using RNA interference to determine the role of catalase in the freeze tolerant spring field cricket <i>Gryllus veletis</i>
Therm1-4 09:15	Haider, F. , Andersen, M. K., Fudlosid, S., Musso, A., Evenden, M., Wardlaw, A., Yuehong, L., Roe, A., MacMillan, H. Carleton University Energy dynamic in Mountain Pine Beetle larvae during overwintering
Therm1-5 09:30	Facina, E. , Darveau, C.-A. University of Ottawa Temperature induced developmental phenotypic plasticity impacts morphological and metabolic traits associated with flight in the hawk moth, <i>Manduca sexta</i>
Therm1-6 09:45	Bretzlaff, T., Darveau, C.-A. University of Ottawa Coping with the heat in the endothermic poikilothermic eusocial bumblebee <i>Bombus impatiens</i>

Tuesday / mardi
08:30- 10:00
Contributed Sessions / Sessions Contribuées

IEE1 - Birds and Mammals

Location: Bison – WCVN 2115

Room Chair: Christy Morrissey

IEE1-1 08:30	Génier, C. S. V. , Guglielmo, C. G., Hobson, K. A. University of Western Ontario Comparing Diet Composition of Aerial Insectivorous Birds
IEE1-2 08:45	Litt-Jukes, J. , Morrissey, C. University of Saskatchewan Behavioural Responses to Artificial Light at Night in Nocturnal Migrant and Nonmigratory Songbirds
IEE1-3 09:00	Empty
IEE1-4 09:15	Wishart, A. E. , Boutin, S., McAdam, A. G., Dantzer, B., Lane, J. E. University of Saskatchewan Influence of body condition dynamics on food caching
IEE1-5 09:30	Blair J. D. , Marshall, K. E., Khidas, K. University of British Columbia Using 3D models to train image classification models: A case study in Canadian carnivore skulls
IEE1-6 09:45	Danusevic, A. , Poissant, J., McLoughlin, P. D. University of Saskatchewan Buddies and Bullies in Sable Island Feral Horses

Tuesday / mardi
10:30- 12:00
Contributed Sessions / Sessions Contribuées

CPB Symposium

So you published your data, now what? Science communication and practical application of your data

Location: Amoeba – WCVN 2302

Room Chair: Paul Craig

CPBS-1 10:30	Marshall, K.E. , Borzorgi, Y., Gyte, K., Roe, A.D., van der Burg, K.L. University of British Columbia Local adaptation in the plasticity of cold hardiness in the eastern spruce budworm
CPBS-2 11:00	Docker, M. F. , Harder, K., Khan, A. A., Litke, B. M., Ogden, J. L. University of Manitoba Using eDNA to inform conservation of Canadian freshwater fishes
CPBS-3 11:30	Drake, D.A.R. Fisheries and Oceans Canada The Role of Conservation Physiology in the Science and Management of SARA-listed Fishes
CPBS-4 12:00	Rossi, G.S. , Welch Jr., K.C. University of Toronto How do hummingbirds fatten for migration?

Tuesday / mardi
10:30- 12:00
Contributed Sessions / Sessions Contribuées

IEE2 - Aquatic

Location: Bison – WCVN 2115

Room Chair: Chris Guglielmo

IEE2-1 10:30	Bansal, A. , Zastepa, A., Davies, J.M., Vandergucht, D., Hudson, J. University of Saskatchewan Impact of cyanobacteria on ecosystem function
IEE2-2 10:45	Misutka, M.D. , Goss, G.G., Glover, C.N., Veilleux, H.D. University of Alberta Environmental DNA for aquatic biomonitoring
IEE2-3 11:00	Morris, M. R. J. , Summers, M., Kwan, M., Mee, J., Rogers, S. M. Ambrose University Seafood Mislabeling and Conservation in Calgary
IEE2-4 11:15	Balshine, S. , Brown, N. A. W., Bose, A. P., Juanes, F. McMaster University Nest choice in a toadfish
IEE2-5 11:30	Preagola, A. , Crane, A., Achtymichuk, G., Rivera-Hernandez, I., Thapa, H., Ferrari M.C.O. University of Saskatchewan Uncertainty about old information results in differential predator memory in tadpoles.
IEE2-6 11:45	Thapa, H. , Salahinejad, A., Ghobeishavi, A., Ferrari, M. C. O. University of Saskatchewan Effect of background risk on associative learning performance of zebrafish (<i>Danio rerio</i>).

Tuesday / mardi
10:30- 12:00
Contributed Sessions / Sessions Contribuées

CMD2 - Invertebrates

Location: Carp – WCVN 2105

Room Chair: Natasha Mhatre

CMD2-1 10:30	Asgari, H. , Mhatre, N. Western University Variation in the kinematics of black widow spider legs during locomotion
CMD 2-2 10:45	Ellison, E. , Darveau, C, -A. University of Ottawa Effects of Diet Quality on Developmental Plasticity of Size and Flight Energetics in <i>Manduca sexta</i>
CMD 2-4 11:15	Brubacher, J.L. Canadian Mennonite University Conservation and novelty in an early syncytial stage of oogenesis

Tuesday / mardi
10:30- 12:00
Contributed Sessions / Sessions Contribuées

PIE1 - Land and Sea

Location: Damsely – WCVN 2104

Room Chair: Cody Malone, Barb Katzenback

PIE1-1 10:30	Reeve, C. , Miehls, S. M., Lowe M. R., Moser, M., Brownscombe, J. W., Cooke, S. J., Adams, J. V. Carleton University Detecting Sea Lamprey Attacks on Lake Trout with Biologgers
PIE1-2 10:45	Douglas, A. J. , Yang, J. J., Katzenback, B.A. University of Waterloo Characterizing the Antimicrobial Activity of Skin-Secreted Peptides from the Wood Frog
PIE1-3 11:00	Todd, L. A., Reinert, L. K., Wu, J. M., Morningstar, B. E. E., Rollins-Smith, L. A., Katzenback, B. A. University of Waterloo <i>Batrachochytrium dendrobatidis</i> supernatants affect frog skin epithelial-like cell responses
PIE1-4 11:15	Muldoon, T.R. , Phinny, L., Stewart, D.T., Shutler, D. Acadia University A spatiotemporal analysis of parasites from Nova Scotia bat guano
PIE1-5 11:30	Saworski, Toni. , Hill, J., Parker, S., Poissant, J., Gilleard, J., Jenkins, E. University of Saskatchewan Saskatchewan Equine Nematobiome
PIE1-6 11:45	Malone, C.J. , Harms, N.J., Beckmen, K., Jutha, N., Awan, M., Lobanov, V., Scandrett, B., Jenkins, E. University of Saskatchewan Prevalence, diversity, and intensity of <i>Trichinella spp.</i> in wildlife from northwestern North America

Tuesday / mardi
14:30- 15:50

President's Award
PDF talks

Location: Arts 143

Room Chair: Carol Bucking

PDF-1 14:30	Ghanizadeh-Kazerouni, E. , Morrison, P. R., Wilson, J. M., Jones, S. R. M., Brauner, C. J. University of British Columbia Atlantic Salmon (<i>Salmo salar</i>) gill filaments regenerate following physical damage
PDF-2 14:50	Dichiera, A. , Weber, T., Bedard, M., Saysanasay, E., Hannan, K.D., Kwan, G.F., Fangue, N.A., Schulte, P.M., Brauner, C.J. University of British Columbia Lessons from a long-lived fish: phenotypic flexibility in response to chronic thermal stress
PDF-3 15:10	Horn, M. E. , Segner, H., Brinkmann, M., Machtaler, S. University of Saskatchewan Contrast-enhanced ultrasound imaging as a tool to quantify intestinal inflammation in rainbow trout
PDF-4 15:30	Lutek, K. , Stark, A.Y. Villanova University The effect of strain rate on adhesive performance in the purple sea urchin (<i>Strongylocentrotus purpuratus</i>)

**Tuesday / mardi
16:30-17:30**

**Cameron Lecture / Conférence Cameron
Outstanding Ph.D. Thesis in Zoology submitted to a Canadian
University**

Location: Arts 143

Chaired by : Heather Jamniczky

Jackie Lebenzon,

**Department of Integrative Biology
University of California, Berkeley**



Jackie did her undergrad at Western University and completed her Honour's thesis with Brent Sinclair where she explored how crickets maintain salt and water balance in the cold. After getting hooked on insect cold tolerance, she returned to Western for her PhD with Brent where she studied how an important economic pest species, the Colorado potato beetle, survives harsh temperate winters. Jackie is now an NSERC postdoctoral fellow working with Caroline Williams at the University of California Berkeley. She has shifted gears (but returned to her orthopteran roots!) exploring the evolutionary physiology of life history trade-offs in wing polymorphic field crickets. Outside of the lab, Jackie is an avid baker, coffee shop explorer, and Wingspan enthusiast.

**Tuesday / mardi
17:30-18:30**

Fry lecture / Conférence Fry

Outstanding contribution to Zoology in Canada

Location: Arts 143

Chaired by : Heather Jamniczky

Dr. Kathleen Gilmour

**Department of Biology
University of Ottawa**



Katie Gilmour is a professor in the Department of Biology at the University of Ottawa, where she has been since 2004. She was an undergraduate at McMaster University and then completed her PhD at the University of Cambridge with Charlie Ellington, working on bumblebee flight muscle. She moved to working on fishes as a postdoctoral fellow, first at the University of Ottawa and then McMaster. Her current research explores two themes. First, she aims to understand the mechanisms through which fish maintain gas exchange and acid-base balance in diverse environments. Work in this area focuses on mechanisms of gas sensing and ion transport, particularly with respect to the enzyme carbonic anhydrase, which plays key roles in both gas transfer and acid-base balance in a variety of tissues. Second, Gilmour uses the formation of dominance hierarchies in fish and the resultant social stress as a means of studying chronic stress. Questions of interest focus on how the stress axis functions during acute versus chronic stress, as well as the physiological consequences of chronic stress on metabolism, growth and tolerance of environmental challenges such as elevated temperature. Gilmour serves as a Monitoring Editor for the Journal of Experimental Biology and is the Vice-Dean, Governance and International Affairs for the Faculty of Science at the University of Ottawa.

Wednesday, May 17th

	Contributed Sessions	Location
8:30-10:00	Toxicology 2 – Miscellaneous (CPB Tox2)	Eider WCVM 2103
	Hypoxia 2 – Mammals (CPB Hypox2)	Carp WCVM 2105
	Thermal Physiology 2 (CPB Therm2)	Ameoba WCVM 2302
	PIE - Feeling Itchy? (PIE2)	Damselfly WCVM 2104
	IEE - Invertebrates (IEE3)	Bison WCVM 2115
	10:00-10:30	Break / Pause
10:30-12:30	Hoar Award / Prix Hoar Best Student Oral Presentation	Arts 143
12:30-14:00	CPB Lunch / Dîner CPB	Garry Room, Marquis Hall
14:00-14:30	Break / Pause	
14:30-16:30	LOC Symposium / Symposium du COL: Best Post-Doctoral Fellow Oral Presentation	Arts 143
16:30-17:00	Coffee Break / Pause café	Arts 143
17:00-18:00	Diversity Workshop / Atelier sur la diversité Brittney Borowiec	Arts 143
18:00-20:30	Poster Session / Session d'affiches Meet the editors of JEB	Garry Room, Marquis Hall
20:30-???	Trainee Network Mixer	Louis Pub

Wednesday / mercredi

8:30- 10:00

Contributed Sessions / Sessions Contribuées

CPB - Toxicology 2 -MISC

Location: Eider – WCVM 2103

Room Chair: Erin Leonard

TOX2-1 08:30	EMPTY
TOX2-2 08:45	EMPTY
TOX2-3 09:00	Woodall, K. M. , Stafford, J. University of Alberta Macrophage cell biosensor system to detect bioactivity of electro- and solar oxidation-treated oil sands process-affected waters
TOX2-4 09:15	Wilkie, M. P. , Pham-Ho, P. Q. H., Lisser, D. F. J. Wilfrid Laurier University A Proposed Mechanism of Ammonia-Induced Brain Swelling in Goldfish and Rainbow Trout.
TOX2-5 09:30	Overduin, S. L. , De Bonville, J., Griffin, R. A., Skeeles, M. R., Scheuffele, H., Clark, T. D., Norin, T., Jutfelt, F., Blewett, T. A. University of Alberta Is metabolism driving the difference in sublethal copper toxicity as a function of sociality in threespine stickleback (<i>Gasterosteus aculeatus</i>)?
TOX2-6 09:45	Rachamalla, M. , Niyogi, S. University of Saskatchewan Transgenerational neurobehavioural effects of ancestral dietary arsenic exposure in zebrafish (<i>Danio rerio</i>)

Wednesday / mercredi
08:30- 10:00
Contributed Sessions / Sessions Contribuées

CPB - Hypoxia 2 -Mammals

Location: Carp – WCVL 2105

Room Chair: Alex Zimmer

Hypox2-1 08:30	Tirca, B. , Cheng, H., Pamerter, M. E. University of Ottawa Hypoxia-mediated changes in uncoupling protein expression in naked mole-rats
Hypox2-2 08:45	Eaton, L. , Welch, I., Wang, T. H., Bengtsson, J., Halal, A.K., Pamerter, M. E. University of Ottawa Exploring the roles of reactive oxygen species generators and scavengers in free radical homeostasis during acute hypoxia in naked mole-rat cortex
Hypox2-3 09:00	Pamerter M. E. , Cheng, H., Perkins, G., Ellisman, M.H. University of Ottawa Mitochondrial nanotunnel networks in naked mole-rat brain
Hypox2-4 09:15	Duffy, B. M. , Hayward, L., Staples, J. F. Western University Torpid 13-lined ground squirrel liver mitochondria resist anoxia-reoxygenation despite high levels of protein damage
Hypox2-5 09:30	Dessureault, L. , McClelland, G. B. McMaster University Exercise Recovery in High Altitude Deer Mice (<i>Peromyscus maniculatus</i>)
Hypox2-6 09:45	Kadamani, K. L. , Patel, J., Alfadhli, L., Pamerter, M. E. University of Ottawa Naked Mole-Rats and Mice exhibit varying Sickness Behaviour and Microglia Activation Patterns Following Acute Hypoxia and LPS exposure

Wednesday / mercredi
08:30- 10:00
Contributed Sessions / Sessions Contribuées

CPB - Thermal Physiology 2

Location: Amoeba – WCVN 2302

Room Chair: Suzie Currie

Therm2-1 08:30	Empty
Therm2-2 08:45	Eliason, E.J. , Hardison, E.A., Heard, M. University of California Diet impacts thermal performance and tolerance in fish
Therm2-3 09:00	Rivard, G. , Gilbert, M.H., Speers-Roesch, B. University of New Brunswick The time course of cardiac thermal acclimation in a eurythermal fish, the mummichog (<i>Fundulus heteroclitus</i>)
Therm2-4 09:15	Manchester, E.A. , Shaftoe, J.B., Gillis, T.E. University of Guelph A Heartwarming Study of Zebrafish: Investigating the functional and histological response of the zebrafish (<i>Danio rerio</i>) heart to re-warming following cold acclimation
Therm2-5 09:30	Shaftoe, J. B. , Geddes-McAlister, J., Gillis, T. E. University of Guelph Mass spectrometry suggests time-dependent regulation of stretch signaling, cell membrane homeostasis, and myocardial tension during cold acclimation in zebrafish (<i>Danio rerio</i>)
Therm2-6 09:45	Gilbert, M. J. H., Middleton, E. K., Williams, E. P., Harris, L., Moore, J.-S., and Speers-Roesch, B. University of New Brunswick Seasonal patterns in metabolism and energetics in Earth's most northerly distributed freshwater fish, the Arctic char (<i>Salvelinus alpinus</i>)

Wednesday / mercredi
08:30- 10:00
Contributed Sessions / Sessions Contribuées

PIE2 - Feeling Itchy?

Location: Damsely – WCVN 2104

Room Chair: Loki Snyman, Laura Ferguson

PIE2-1 08:30	Snyman, L.P. , Minkova, S., Jenkins, E.J. University of Saskatchewan Dermacentor ticks in Saskatchewan
PIE2-2 08:45	Lauzon, M. , Easy, R.H., Ferguson, L.V. Acadia University Impacts of pathogen infection on black-legged tick winter activity and physiology
PIE2-3 09:00	MacLeod, C. D. , Luong, L. T. University of Alberta Fruit flies can differentiate between parasite and predator threat
PIE2-4 09:15	Rand, E. J., Smith T. G., Ferguson, L. V. Acadia University Comparative thermal performance of mosquito immunity
PIE2-5 09:30	Swanburg, T. L. , Easy, R. H., Hillier, N. K., Smith, T. G., Ferguson, L. V. Acadia University Detecting the Spread of Invasive Mosquitoes and Disease Potential in Nova Scotia
PIE-6 09:45	Buhler, K.J., Snyman, L.P. , Fuglei, E., Davidson, R., Ptochos, S., Galloway, T., Jenkins, E.J. University of Saskatchewan Evidence of a cryptic louse species on Arctic foxes

Wednesday / mercredi
08:30- 10:00
Contributed Sessions / Sessions Contribuées

IEE3 - Invertebrates

Location: Bison – WCVN 2115

Room Chair: Maud Ferrari, Doug Chivers

IEE3-1 08:30	Black, E.B. , Blair, J.D., van der Burg, K.R.L., Marshall, K.E. University of British Columbia Crowd-sourced observations of a polyphagous moth reveal evidence of allochronic speciation varying along a latitudinal gradient
IEE3-2 08:45	Ulrich, J.C. , Chivers, D.P., Ferrari, M.C.O University of Saskatchewan The Effect of Abiotic Stimuli on the Predation Efficiency of Water Tigers (<i>Dytiscus alaskanus</i>)
IEE3-3 09:00	Butler-Siemens, S.B. , Phillips, I.D. University of Saskatchewan The Decomposition of Manure in Aquatic Ecosystems
IEE3-4 09:15	Achtymichuk, G. H. , Fish, K. M., Ferrari, M. C. O. University of Saskatchewan Risk or reward? Behavioural response of crayfish to alarm cues when fed a cannibalistic diet
IEE3-5 09:30	Vanderwel, K. M. , Chivers, D. P., Ferrari, M. C. O. University of Saskatchewan Water Temperature and Personality in Crayfish
IEE3-6 09:45	Knighton, E., Walls, L.G., McGaw, I.J., Wyeth, R.C. St. Francis Xavier University Influences of prey type on American lobster agonistic behaviours

Wednesday / mercredi
10:30- 12:10

William S. Hoar Award
Students talks

Location: Arts 143

Room Chair: Carol Bucking

Hoar -1 10:30	Blanchard, T.S. and Schulte P. M. University of British Columbia From genes to physiology: Impact of fluctuating environments during early development
Hoar -2 10:50	Coulson, S. Z. , Staples, J. F., Guglielmo, C. G. Western University Flight muscle mitochondria are seasonally plastic in a migratory songbird
Hoar -3 11:10	Earhart, M.L. Department of Zoology, University of British Columbia, Vancouver, Canada From the epigenome to performance: effects of heatwave acclimation in an ancient endangered fish
Hoar -4 11:30	Lazaro-Côté, A. , Vijayan, M. M. University of Calgary Wild coho salmon females with high circulating cortisol have reduced fitness
Hoar-5 11:50	Pujari, N. , Browne, V., Leung, A. K. W. University of Saskatchewan Mating induced metabolic changes in female Drosophila is regulated by dNUCB1's expression in the nervous system

**Wednesday / mercredi
14:30- 16:30**

LOC Symposium

**Animal, Human and Environment Interactions: A University of
Saskatchewan Perspective**

Location: Arts 143

Room Chairs: Suraj Unniappan & Emily Jenkins

LOC -1 14:30	Emily Jenkins , Kayla Buhler, Loki Snyman, Maarten Voordouw, Janet Hill, Patrick Leighton, Antonia Dibernardo, Phil Curry, Priya Goundar, Jade Savage, Jeremie Bouffard Western College of Veterinary Medicine A One Health approach to ticks and tick-borne diseases in people, animals, and the environment at an interface zone in Canada
LOC -2 15:00	Morrissey, Christy Department of Biology Farms, Food and Avifauna: Rethinking agricultural production to enhance sustainability
LOC -3 15:30	Wheeler, Winona Indigenous Studies Department Western meets Indigenous: Horse Nations in the Americas
LOC -4 16:00	Ruzzini, A. C. , Dhindwal, P., Myziuk, I., Thompson, C.T., Kos, D., Jelinski, M. J. Department of Veterinary Microbiology Emerging antimicrobial resistance hiding in plain site

Wednesday / mercredi
17:00-18:00
Diversity Workshop / Atelier sur la Diversité
Navigating Authorship

Location: Arts 143

Chaired by: Brittney Borowiec

Authorship is how academics communicate credit and responsibility for work. Authorship has high stakes, especially for early career researchers, for grants, scholarships, jobs, and awards. But authorship is also complicated. Authorship disparities disproportionately affect equity-seeking groups, and authorship decisions can be impacted by unconscious bias. Joins us as we wrestle with authorship issues with case studies and facilitated discussion.

Wednesday / mercredi
18:00-20:00

Poster Session

Location: Garry Room, Marquis Hall (presenting authors in bold). * = Holeyton Award finalist

Presenter	Affiliation	Poster Title	Section	#
Masood, Fatima	University of Saskatchewan	Antimicrobial resistance and genomic characterization of North American <i>Melissococcus plutonius</i> isolates	CMD	1
Malagon, Juan	Canadian Mennonite University	Dynamics of changes in apical cell area during sex comb rotation in <i>Drosophila melanogaster</i>	CMD	2
Duclos, Kevin	University of Calgary	3D digitization as a means of engaging undergraduate students in zoology research	CMD	3
Ciocca, Francesca	University of British Columbia	Interspecific diversity in propretagium shape during avian wing morphing	CMD	4
MacPhee, Daniel	Western College of Veterinary Medicine, University of Saskatchewan	Integrin-linked Kinase is Highly Expressed in Myometrium and Localized to Distinct Focal Adhesions during Late Pregnancy and Labour	CMD	5
MacPhee, Daniel	Western College of Veterinary Medicine, University of Saskatchewan	The Integrin Activator Talin is Highly Expressed in Myometrium During Late Pregnancy and Labour and Distinctly Localized to Focal Adhesions	CMD	6
Karimzadeh, Katayoon	Western College of Veterinary Medicine, University of Saskatchewan	Chitosan nanoparticles containing spirulina protein hydrolysate ameliorate hepatic lipid metabolism and altered redox homeostasis in non-alcoholic fatty liver disease in rats	CPB	7
Wallace, Grace	University of Winnipeg	Effect of acute exposure to elevated carbon dioxide on early life stages of medaka (<i>Oryzias latipes</i>)	CPB	8
Dean, Rebecca	Carleton University	Changes in gene expression during cold acclimation allow <i>Drosophila melanogaster</i> to offset the effects of chill injury	CPB	9
Rey-Dubois, Cameron	University of Winnipeg	The effects of INSL5 on splenic dendritic cell function: an investigation into DSS-induced colitis and spleen hypofunction	CPB	10
Bugg, William	Pacific Salmon Foundation	Identification of physiological impacts and biomarkers for food deprivation in juvenile Chinook salmon, with application for non-lethal assessment of wild populations	CPB	11
Wang, Chenyi	University of Manitoba	Use the stable isotope to measure protein turnover in a freshwater snail <i>Planorbella duryi</i>	CPB	12
Long, Reece	University of Guelph	Elucidating the impact of thyroid hormones on heart regeneration	CPB	13
Morse, Cameron	Western College of Veterinary Medicine, University of Saskatchewan	The relationship between cardiac pump capacity and cerebral perfusion in rats	CPB	14
Whiting, Holly	University of Manitoba	Exploring the role of ammonia transporters (AMTs) in the branchial tissue of the horseshoe crab, <i>Limulus polyphemus</i>	CPB	15

Presenter	Affiliation	Poster Title	Section	#
Katzenback, Barbara	University of Waterloo	Detection of Southern Ontario amphibians using environmental DNA barcoding and comparison to conventional methodologies	CPB	16
Nasri, Atefeh	University of Saskatchewan	Suppressive action of nesfatin-1 and nesfatin-1-like peptide on cortisol synthesis in human adrenal cortex cells	CPB	17
Nasri, Atefeh	University of Saskatchewan	Nucleobindin-derived nesfatin-1 and nesfatin-1-like peptide modulate hepatic lipid accumulation in vitro and in vivo	CPB	18
Unniappan, Suraj	University of Saskatchewan	Metabolic Myokine Irisin is a Secreted Peptide Detectable in Domestic Animal Circulation	CPB	19
Unniappan, Suraj	University of Saskatchewan	Nucleobindin-1 disruption affects feeding, metabolism, and glucose homeostasis in mice in an age-, sex-, diet- and light cycle-dependent manner	CPB	20
Glass, Aiden	University of Saskatchewan	Capitalizing on automated quantification of spontaneous novelty preference to infer working memory capacity following acute Cannabis smoke exposure in rats	CPB	21
Santa Rita, Zandra	University of British Columbia	Neural encoding of motion parallax in avian pretectal neurons of zebra finches (<i>Taeniopygia guttata</i>)	CPB	22
Coulson, Soren	Western University	Relaxing on the wing: Myosin conformation in migrating birds	CPB	23
Zhang, Chengcheng	University of Guelph	The role of 11 β -hydroxysteroid dehydrogenase type 2 (hsd11b2) in regulating neurogenesis during brain development in zebrafish (<i>Danio rerio</i>)	CPB	24
Vu, Minh	Department of Anatomy, Physiology and Pharmacology, University of Saskatchewan	Cross-talk Inhibition between Serotonergic Type 3 Receptor (5HT3R) and Nicotinic Receptor (nAChR) in Mouse Sympathetic Neurons	CPB	25
Vu, Minh	Department of Anatomy, Physiology and Pharmacology, University of Saskatchewan	Cross-talk Inhibition between Serotonergic Type 3 Receptor (5HT3R) and Nicotinic Receptor (nAChR) in Mouse Sympathetic Neurons	CPB	26
Flear, Kaitlyn	University of Ottawa	Are measures of hypoxia tolerance repeatable in zebrafish (<i>Danio rerio</i>)?	CPB	27
Garvey, Kayla*	McMaster University	Influence of hemoglobin-O ₂ affinity on aerobic capacity in deer mice (<i>Peromyscus maniculatus</i>)	CPB	28
Yutsyschyna, Maria	University of Guelph	Effects of Substrate Choice and Anoxia Exposure on the Cardiac Mitochondria of the Pacific Hagfish (<i>Eptatretus stoutii</i>)	CPB	29
Wang, Yuyang	Queen's University	The Mixed Blessings of Glycolysis During Anoxia-Reperfusion in Locusts	CPB	30
Khalid, Enezi*	University of Alberta	Small GTPases regulate pituitary cell functions in goldfish (<i>Carassius auratus</i>)	CPB	31
Costa, Daniel	São Paulo State University, Brazil	Effects of alternative Bisphenols - BPS and BPAF- on zebrafish spermatogenesis and its consequences in behavior	CPB	32
Neumann, Jesse	University of Calgary	Direct action of Glucagon-like peptide-1 (GLP-1) on zebrafish testicular function	CPB	33

Presenter	Affiliation	Poster Title	Section	#
Uju, Chinelo	Western College of Veterinary Medicine, University of Saskatchewan	Brain-Derived Neurotrophic Factor (BDNF) Increases Reproductive Hormone mRNA Abundance in Zebrafish Brain and Gonads In Vivo and In Vitro	CPB	34
Hatef, Azadeh	University of Saskatchewan	Nesfatin-1-Like Peptide Enhances Reproductive Hormones in Hypothalamic Neurons and Pituitary Gonadotrophs and Stimulates Testosterone Secretion in Mice	CPB	35
Roosta, Zahra	Western College of Veterinary Medicine, University of Saskatchewan	Does Kisspeptin-10 affect lysozyme activity in female Sterlet sturgeon, <i>Acipenser Stellatus</i> ?	CPB	36
Zhang, Baoyue	University of Manitoba	Branchial ammonia excretion in the green crab <i>Carcinus maenas</i> is regulated by cAMP	CPB	37
Hong, Michelle	University of Ottawa	Ion Regulation Under Acidic Conditions in Zebrafish (<i>Danio rerio</i>) Lacking Functional Corticosteroid Receptors	CPB	38
Fehsenfeld, Sandra	UQAR	The role of octopamine in crustacean acid-base regulation	CPB	39
Saruhashi, Stefane*	University of Western Ontario	How do frozen crickets maintain mitochondrial function?	CPB	40
Gahs, Heather*	McMaster University	Torpor as an energy saving strategy to cope with metabolic challenges in deer mice (<i>Peromyscus maniculatus</i>)	CPB	41
Weber, Theresa	University of British Columbia	Reversible Thermal Acclimation in 10-year-old White Sturgeon	CPB	42
Aminot, Mélanie	Université de Moncton	Validation of mitochondrial density markers in ectothermic species	CPB	43
Weber, Allison*	University of Waterloo	Characterizing darter (<i>Etheostoma spp</i>) interspecific enzymatic responses to climate-induced temperature changes	CPB	44
Léger, Adèle	Université de Moncton	Investigating thermogenic mechanisms in honeybees	CPB	45
Borowiec, Brittney	University of Waterloo, Waterloo	Rapid recovery from loss of equilibrium induced by hypoxia, warming, or exercise in rainbow darter (<i>Etheostoma caeruleum</i>)	CPB	46
Williams, Emily	University of New Brunswick	Seasonal changes in the temperature tolerance, sensitivity, and regulation of cardiac function in fishes	CPB	47
Manzon, Richard	University of Regina	Embryo incubation temperature influences aerobic swimming performance in juvenile Lake whitefish, but not Yellow perch	CPB	48
Burillo, Amanda	University of Regina	Effects of temperature and live-well water conditioners on plasma cortisol and lactate in Walleye (<i>Sander vitreus</i>) at catch and release angling tournaments	CPB	49
Hartenstein, Peyton	University of Regina	Embryonic thermal stress and its effect on the stress response during embryogenesis and early life stages in Yellow perch (<i>Perca flavescens</i>)	CPB	50
Haghighi, Hossein	University of Manitoba	Developing an OpenArray chip to analyze the expression of genes important in the thermal stress response of <i>Acipenser sturgeons</i>	CPB	51

Presenter	Affiliation	Poster Title	Section	#
Robertson, Krista	University of Manitoba	Using mucus to assess gene expression in fathead minnows exposed to graded nutrient loadings	CPB	52
Farajizadeh, Arian	University of Alberta	Potential of the PFOA uptake in Pacific Oyster (<i>Magallana gigas</i>) by PS-NP nanoparticles	CPB	53
Weihrauch, Dirk	University of Manitoba	Protection from high cellular ammonia concentrations is mediated by the novel NH ₄ ⁺ transporter, HIAT1	CPB	54
Calik, Derin	University of Guelph	Dilbit Exposure Reduces Cardiorespiratory Performance in Two Species of Pacific Salmon (<i>Oncorhynchus sp</i>)	CPB	55
Grant, Alannah	University of Guelph	City Living: The influence of urban stress on early rates of neurogenesis in eastern grey squirrels (<i>Sciurus carolinensis</i>)	CPB, IEE	56
Diakanastasis, Eleni	York University	The molecular physiology of the poeciliid gill epithelium TJ complex: Sex-specific differences	CPB, CMD	57
Walters, Scott	Western University	Seasonal and Site-specific Effects of Biofilm on the Fatty Acid Composition of Migrating Shorebirds	IEE	58
Hassanzadeh, Marziyeh	Department of Anatomy, Physiology, and Pharmacology, University of Saskatchewan	Did Trans-Regulatory Changes to Sox9 and Runx2 Decrease Cartilage Gene Expression During Osteoblast Evolution?	IEE	59
Arnyek, Alexa	University of Saskatchewan	Worming their way into the boreal: Earthworm invasion via bait abandonment in the Saskatchewan southern boreal forest	IEE	60
Koob, Taya	University of Saskatchewan	Shining a Light on Bat Activity: Artificial Light Increases Foraging Activity in Red Bats (<i>Lasiurus borealis</i>) in Saskatchewan	IEE	61
Minns, Rosemary	University of Winnipeg	Behavioural responses to various stimuli in Japanese Medaka	IEE	62
Reeve, Connor	Carleton University	The Winter Behaviour and Cardiac Responses of Largemouth Bass in a Small Lake	IEE	63
Hain, Timothy	University of Western Ontario	Urbanization and biodiversity: Citizen science confirms species-area relationship for birds in urban parks	IEE	64
Johnson, Kelsey	Fisheries and Oceans	2D to 3D: Exploring variation of niche metrics across consumers in a coastal Arctic ecosystem and implications on interpretation	IEE	65
Achtymichuk, Gabrielle	University of Saskatchewan	Testing the waters: the choice of euthanasia techniques can affect experimental results in aquatic behavioural studies	IEE	66
Visser, Sophie	Acadia University	Effects of microplastics on vector physiology and on susceptibility of <i>Hepatozoon clamatae</i> in <i>Culex territans</i>	PIE	67
McNicol, Ian	University of Winnipeg	The anti-inflammatory effects of INSL5 in a DSS-induced murine model of ulcerative colitis	PIE	68
Art, Davis	University of Saskatchewan	Damage by Ants to the Honey Bee Parasitic Mite, <i>Varroa destructor</i>	PIE	69
Art, Davis	University of Saskatchewan	Anatomical investigation of regular dorsal dimples on <i>Varroa destructor</i> , a devastating parasitic mite of honey bees	PIE	70

Presenter	Affiliation	Poster Title	Section	#
Steuart, Kael	University of Manitoba	Costs of Two Larval Trematode Stages to the Life History Traits of Two Freshwater Snail Species	PIE	71
David, Tori	Acadia University	Immune responses elicited by mosquitoes, <i>Culex territans</i> , infected with <i>Hepatozoon sipedon</i> from the blood of Common Gartersnakes	PIE	72
McLellan, Linnea	Western College of Veterinary Medicine, University of Saskatchewan	Parasites as Stressors of Cervid Populations in Boreal Saskatchewan	PIE	73
Gharamah, Abdullah	University of Alberta	Genomic and Transcriptomic Analysis of the Whirling disease-resistant Gunnison River Rainbow Trout	PIE	74
Agina, Onyinyechukwu	University of Nigeria, Nsukka	Proinflammatory cytokine immune response and high serum antioxidative enzyme activities predominate in cattle with high RoTat12 Variable Surface Glycoprotein gene copy numbers of <i>Trypanosoma evansi</i>	PIE	75
Hambrook, Jacob	School of Public Health, University of Alberta	A cercarial invadolysin interferes with the host immune response and facilitates infection establishment of <i>Schistosoma mansoni</i>	PIE	76

Meet the Editors of Journal of Experimental Biology

2023 is the 100th anniversary of Journal of Experimental Biology, and JEB Editors Katie Gilmour, Trish Schulte and Pat Wright will be hosting a 'Meet the Editors' event during the Poster Session.

Come and chat to them to find out more about the journal, all the things we are doing to celebrate our centenary this year and how we support early-career researchers, including travelling fellowships and our new grants to support junior faculty staff.

There will be lots of JEB goodies to take away, including centenary notebooks and pens, JEB Classics and Highlights booklets, postcards and stickers, and issues of the journal.



Kathleen Gilmour

Patricia Schulte

Patricia Wright

Thursday, May 18th

8:30-10:00	CMD Symposium / Symposium du MCD Morphology through eco, evo and devo	Amoeba WCVM 2302
	Contributed Sessions	
	Endocrinology 1 Reproduction (CPB Endo1)	Carp WCVM 2105
	Thermal Physiology 3 (CPB Therm3)	Bison WCVM 2115
	Neurobiology and Behaviour (CPB Neuro)	Eider WCVM 2103
	Respiratory and Circulatory Physiology (CPB Resp)	Damselfly WCVM 2104
	PIE – Snails and such (PIE3)	Frog WCVM 2102
10:00-10:30	Break / Pause	
10:30-12:00	IEE Symposium / Symposium du IEE Decision Making in the Anthropocene	Amoeba WCVM 2302
	Wardle Lecture Kayla King Chasing the Red Queen	Bison WCVM 2115
	Contributed Sessions	
	Thermal Physiology 4 (CPB Therm4)	Carp WCVM 2105
	Endocrinology 2 Stress (CPB Endo2)	Eider WCVM 2103
	Gut Physiology (CPB Gut)	Damselfly WCVM 2104
12:00-13:30	PIE Lunch / Dîner PIE CMB Lunch / Dîner MCD IEE Lunch / Dîner IEE	Montcalm Exeter Selkirk Marquis Hall
13:30-14:00	Break / Pause	
14:00-15:30	PIE Symposium / Symposium du PIE Parasites and Disease in our Changing Climate	Amoeba WCVM 2302
	Contributed Sessions	

	CPB Miscellaneous (CPB-M)	Damselfly WCVm 2104
	Osmoregulation (CPB Osmo)	Bison WCVm 2115
	Toxicology 3 – Fish (CPB Tox3)	Eider WCVm 2103
	Endocrinology 3 – Metabolism (CPB Endo 3)	Carp WCVm 2105
15:30-16:00	Coffee Break / Pause café	Arts 143
16:00-17:00	Boutilier Lecture / Conférence Boutilier Ken Jeffries	Arts 143
17:00-18:00	Break / Pause	
18:00-24:00	Banquet MC: Anastasiia Nykonenko and Cody Malone	Remai Modern Art Gallery

Thursday / jeudi
08:30- 10:00
Contributed Sessions / Sessions Contribuées

CMD - Symposium

Morphology through eco, evo and devo

Location: Amoeba – WCVI 2302

Room Chair: Natasha Mhatre

CMDS-1 08:30	Rajendhran Rajakumar , S. Koch, M. Couture, M.J. Fave, A. Lillico-Ouachour, T. Chen, G. De Blassis, A. Rajakumar, D. Ouellette, O. Tarazona, G. Filowitz, M.J. Cohn and E. Abouheif University of Ottawa From Ants to Cartilaginous Fish: Retention and Reactivation of Ancestral Developmental Potentials
CMDS-2 09:00	Boughner, J.C. , Appelt, C. M., Golinowski, H. K., Guo, Y., Wandzura, A.M., Petryk, J. S. University of Saskatchewan Tooth ça change, tooth c'est la même
CMDS-3 09:30	Webster, N.B. , Ozpolat, D., Meyer, N.P. University of Saskatchewan It only takes one: Neural specification in the annelids <i>Capitella teleta</i> and <i>Platynereis dumerilii</i>

Thursday / jeudi
08:30- 10:00
Contributed Sessions / Sessions Contribuées

CPB - Endocrinology 1 - Reproduction

Location: Carp – WCVI 2105

Room Chair: Ali Honaramooz

Endo1-1 08:30	
Endo1-2 08:45	
Endo1-3 09:00	Ibtisham, F. , Fayaz, M.A., Cham, T.C., Honaramooz, A. University of Saskatchewan Growth Factors Used in a Novel Testicular Tissue Culture System Improve Outcomes of In Vitro Spermatogenesis
Endo1-4 09:15	Honaramooz, A. University of Saskatchewan Lessons Learned from Xenografting of Testis Tissue from Diverse Mammalian Donor Species into Host Mice
Endo1-5 09:30	Uju, C. N. , Unniappan, S. University of Saskatchewan Positive Actions of Fibroblast Growth Factor 21 (FGF21) on Male and Female Zebrafish Reproductive Axis
Endo1-6 09:45	Zanardini, M. , Parker, N., Zhang, W., Habibi, H. University of Calgary Direct action of arginine vasotocin on zebrafish spermatogenesis

Thursday / jeudi
08:30- 10:00
Contributed Sessions / Sessions Contribuées

CPB – Thermal Physiology

Location: Bison – WCVN 2115

Room Chair: Jantina Toxopeus

Therm3-1 08:30	Griffin, R. G. , Ern, R., Jutfelt, F., Blewett, T. A. University of Alberta Implications of a fluctuating estuarine environment on the upper thermal tolerance in the invasive green crab (<i>C. maenas</i>)
Therm3-2 08:45	V, L. L. , Small D., Deslauriers, D., Niemi, A., Jeffries, K.M University of Manitoba Oxygen Consumption and Transcriptomic Response to Acute Thermal Stress in the Truncate Soft-shell Clam, <i>Mya 55runcate</i>, in Northern and Southeastern Populations in Canada
Therm3-3 09:00	Best, C. , Durhack, T., Chapelsky, A. J., Aminot, M., Islam, S. S., Mochnacz, N. J., Heath, D. D., Jeffries, K. M. University of Manitoba Assessing thresholds of thermal tolerance in bull trout (<i>Salvelinus confluentus</i>)
Therm3-4 09:15	Belding, L. D., Thorstensen, M. J. , Quijada-Rodriguez, A. R., Bugg, W. S., Yoon, G. R., Loeppky, A. R., Allen, G. J. P., Schoen, A. N., Earhart, M. L., Sutherby, J., Brandt, C., Ali, J. L., Weihrauch, D., Jeffries, K. M., Anderson, W. G. University of Manitoba Transcriptional, Physiological, and Behavioural Responses of Lake Sturgeon Exposed to Interacting pCO₂ and Temperature During Development
Therm3-5 09:30	Allore, C. A. , Lamarre, S. G., Currie S. Acadia University Subordination Decreases Thermal Sensitivity in an Isogenic Amphibious Fish
Therm3-6 09:45	Rowsey, L. E. , Roche, D., Jutfelt, F., Speers-Roesch, B. University of New Brunswick The significance of variation in the C-start response among fishes with differing overwintering strategies

Thursday / jeudi
08:30- 10:00
Contributed Sessions / Sessions Contribuées

CPB - Neurobiology and Behaviour

Location: Eider – WCVN 2103

Room Chair: Russell Wyeth

Neuro-1 08:30	Forsyth, D. F. , Currie, S. Acadia University Does psilocybin affect behaviour of an isogenic mangrove fish (<i>Kryptolebias marmoratus</i>)?
Neuro-2 08:45	Parkinson, R.H. , Scott, J., Dorling, A. L., Jones, H., Haslam, M., McDermott-Roberts, A. E., Wright, G. A. University of Oxford Bumblebee mouthparts exhibit poor acuity for the detection of pesticides in nectar
Neuro-3 09:00	Khodikian, E. , Yoon, G. R., Porteus, C. S. University of Toronto Scarborough Effect of simulated ocean acidification on olfaction in the coastal yellow shore crab
Neuro-4 09:15	Tigert, L.R. , Porteus, C. University of Toronto Scarborough Does mild hypoxia affect olfaction in a marine fish?
Neuro-5 09:30	Zhang, S. , Gray, J. R. University of Saskatchewan Population Coding of Motion-Sensitive Neurons in <i>Locusta migratoria</i>
Neuro-6 09:45	Yoon, G. , Tigert, L. R., Khodikian, E., Porteus, C. University of Toronto Scarborough Effects of ocean acidification on the activity and metabolism of threespine stickleback (<i>Gasterosteus aculeatus</i>)

Thursday / jeudi
08:30- 10:00
Contributed Sessions / Sessions Contribuées

CPB - Respiratory and Circulatory Physiology

Location: Damsely – WCVN 2104

Room Chair: Todd Gilis

Resp-1 08:30	Yutsyshyna, M. A. , Shaftoe, J. B, Gillis, T. E. University of Guelph Ultrasound Imaging Provides a Non-Invasive means of examining the Hearts of Pacific Hagfish (<i>Eptatretus stoutii</i>)
Resp-2 08:45	Long, R.R.B. , Jacyniak, K., Williams, C., Geddes-McAllister, J., Vickaryous, M., Gillis, T.E. University of Guelph Analyzing the pathways involved in heart regeneration using a comparative approach
Resp-3 09:00	Joyce, W., He, K., Bogomolny, D., Xie, J., Signore, A. V., Campbell, K. L. University of Manitoba Removing the brakes: convergent genomic excision of the regulatory N-terminal extension of cardiac troponin I in a clade of tachycardic mammals
Resp-4 09:15	Saleem, R. , Scott, G. R. McMaster University Mitochondrial Physiology in Cardiac Muscle of Deer Mice Native to High Altitude
Resp-5 09:30	Luan, X. , Le, Y., Henao Romero, N., Machen, T. E., Campanucci, V. A., Tam, J. S., Ianowski, J. P. University of Saskatchewan Pulmonary ionocytes play a role in pH regulation in primary human bronchial epithelial cell culture
Resp-6 09:45	Mustofa, J. , Luan, X., Ianowski, J.P. University of Saskatchewan Pulmonary Ionocytes Contribute to Regulating Airway Surface Liquid Secretion and pH in Swine

Thursday / jeudi
8:30- 10:00
Contributed Sessions / Sessions Contribuées

PIE - Snails and such

Location: Damsely – WCVN 2104

Room Chair: Patrick Hanington and Chenhua Li

PIE3-1 10:30	EMPTY
PIE3-2 10:45	Li, C-H. , Goater, P. C., Wasmuth, D. J. University of Calgary Progress towards understanding host manipulation in Dicrocoelium-infected wood ants
PIE3-3 11:00	Bowhay, C.R. , Hanington, P. C. University of Alberta The importance of TLR expression in snail haemocytes and tissues
PIE3-4 11:15	Hodinka, C. R. , Detwiler, J. T. University of Manitoba The Effects of Light and Heat on the Behaviour of Potential Second Intermediate Host Snails
PIE3-5 11:30	McPhail, B. A. , Hanington, P. C. University of Alberta A longitudinal snail-trematode survey at reclaimed wetlands in Alberta
PIE3-6 11:45	Mann, S. C. , Detwiler, J. T. University of Manitoba Assessing Temporal and Spatial Variation of Gastropods to Predict Brainworm Transmission to Moose

Thursday / jeudi
10:30- 12:00
Contributed Sessions / Sessions Contribuées

IEE - Symposium

Decision Making in the Anthropocene

Location: Amoeba – WCVI 2302

Room Chair: Sigal Balshine

IEES-1 10:30	D.P. Chivers and M.C.O. Ferrari University of Saskatchewan Learning about Risk and Safety in a Changing World
IEES -2 11:00	Crane, A. L. , Ferrari, M. C. O. University of Saskatchewan Uncertainty about novel predation risk in a changing world
IEES -3 11:30	M.C.O. Ferrari and D.P. Chivers University of Saskatchewan Sounds like trouble: the effects of anthropogenic noise on the ecology and cognition of prey fishes

Thursday / jeudi
10:30- 12:00
Contributed Sessions / Sessions Contribuées

CPB - Thermal Physiology 4

Location: Bison – WCVM 2115

Room Chair: Grant McClelland

Therm4-1 10:30	Young, K.G. , Dick, M.F., Staples, J.F., Guglielmo, C.G. University of Western Ontario Dietary n-3 polyunsaturated fatty acids promote mitochondrial proton leak in a migratory sandpiper
Therm4-2 10:45	Hutchinson, A. J. , Staples, J. F., Guglielmo, C. G. Western University The Physiology of Torpor in Ruby-Throated Hummingbirds
Therm4-3 11:00	Empty
Therm4-4 11:15	Baragar, C. E. , Steele, D., Scott, G. R. & McClelland, G. B. McMaster University Adding Fat to the Fire: Investigating the regulatory role of mitochondrial fat sensitivity in shivering muscle.
Therm4-5 11:30	Zucker, E. A. , Bucking, C., Scott, G. R. McMaster University The gut microbiome contributes to thermogenesis in high-altitude deer mice (<i>Peromyscus maniculatus</i>)
Therm4-6 11:45	Koll, R. , Theilen, J., Hauten, E., Tobias-Hünefeldt, S., Thiel, R., Möllmann, C., Fabrizius, A. University of Hamburg Transcriptomic response and gill microbial community changes of dominant fish species under steep abiotic gradients in one of Europe's largest estuarine habitats

Thursday / jeudi
10:30- 12:00
Contributed Sessions / Sessions Contribuées

CPB - Endocrinology 2 - Stress

Location: Eider – WCVM 2103

Room Chair: Matt Vijayan

Endo2-1 10:30	Bouyoucos, I. A. , Shaughnessy, C. A., Dores, R. M., Anderson, W. G. University of Manitoba Molecular and pharmacological characterization of the hypothalamus-pituitary-interrenal axis in elasmobranchs
Endo2-2 10:45	Flatt, E. E. , Alderman, S. L. University of Guelph Investigating the role of 11β-hydroxysteroid dehydrogenase type 2 in mediating stress-specific effects of cortisol on neurogenesis in adult zebrafish (<i>Danio rerio</i>)
Endo2-3 11:00	Shvartsburd, Z.S. , Vijayan, M. M. University of Calgary CRHR1 modulates the organismal stress response independent of cortisol
Endo2-4 11:15	Murray, F. , Machin K. L. Western College of Veterinary Med Corticosterone and metabolomics as a multimodal approach to studying stress in waterfowl
Endo2-5 11:30	Rajeswari, J. J. , Gilbert, G. N. Y, Vijayan, M. M. University of Calgary Corticotropin-releasing hormone receptor 1 modulates the acute heat shock response in zebrafish larvae
Endo2-6 11:45	Empty

Thursday / jeudi
10:30- 12:00
Contributed Sessions / Sessions Contribuées

CPB - Gut Physiology

Location: Carp – WCVN 2105

Room Chair: Szabo-Rogers, Heather

GUT-1 10:30	Weinrauch ,A. , Anderson, W.G. University of Manitoba Contractile properties of the Pacific hagfish hindgut in response to microbial dietary fatty acids
GUT-2 10:45	Drummond, J.M. , Weinrauch, A.M., Anderson, W.G. University of Manitoba Comparing glucose acquisition strategies between two ancient fish species: Lake sturgeon (<i>Acipenser fulvscens</i>) and Pacific spiny dogfish (<i>Squalus suckleyi</i>)
GUT-3 11:00	Wood, C.M. , Wang, J., Jung, E.H., and Pelster, B. Bamfield Marine Science Centre The Physiological Consequences of a Large Meal in a Voracious Marine Fish

**Thursday / jeudi
10:30 - 11:30**

Wardle Lecture

Location: Bison WCVN 2115

Chair: Laura Ferguson

Kayla King
**Department of Microbiology and
Immunology**

University of British Columbia

“Chasing the Red Queen”



Dr. King is a Professor of Biology at the University of British Columbia and Professorial Fellow at the University of Oxford, focusing on the evolution and ecology of host-pathogen interactions. Dr. King’s research includes themes of biodiversity and environmental change to understand the future of infection and disease in animals. As the 2022 Wardle recipient, we recognize the significant contributions that Dr. King’s research has made to the fields of Parasitology, Ecoimmunology and Disease Ecology in Canada and across the globe.

Thursday / jeudi
14:00- 15:30
Contributed Sessions / Sessions Contribuées

PIE - Symposium

Parasites and Disease in our Changing Climate

Location: Amoeba – WCVI 2302

Chair: Laura Ferguson

PIES-1 14:00	Hector, T. E. , Hoang, K. L., Stevens, E. J. S., King, K. C. University of Oxford Pathogen evolution in a warming world
PIES-2 14:30	Germitsch, N. , Tritten, L., Schnyder, M. University of Prince Edward Island The emergence of the French Heartworm <i>Angiostrongylus vasorum</i>
PIES-3 15:00	MacLeod, C. D. , Harley, C.D.G. University of Alberta A widespread host-parasite association in the Strait of Georgia provides a unique opportunity for studying the effects of climate change on parasitism in the marine environment

Thursday / jeudi
14:00- 15:30
Contributed Sessions / Sessions Contribuées

CPB - Miscellaneous

Location: Damsely – WCVN 2104

Room Chair: Emily Standen

CPBM-1 14:00	Koledin, M. , Flávio, H., Bellhouse, E., Wilkie, M. Wilfrid Laurier University Wide Thermal Tolerance of Invasive Sea Lamprey: Past and Future Implications for The Great Lakes
CPBM -2 14:15	Trzcinski, M. , Koledin, M., Flávio, H., Wilkie, M.P. Wilfrid Laurier University Post-exercise Oxygen Consumption and Recovery of Post-metamorphic Juvenile Sea Lamprey Following a Prolonged Non-trophic Period
CPBM -3 14:30	Edwards, T. , Fry, M., Anderson, G. University of Manitoba Effects of amino acids on olfactory development and plasticity in age —0 lake sturgeon <i>Acipenser fulvescens</i>
CPBM -4 14:45	Healy, T. M. , Burton, R. S. Scripps Institution of Oceanography Developmental rate, mitochondrial function and mitonuclear interactions in advanced-generation hybrids after selection for fast development
CPBM -5 15:00	Treberg, J. R. University of Manitoba Transhydrogenation through time: mitochondrial peroxide metabolism through a lens of endosymbiosis

Thursday / jeudi
14:00- 15:30
Contributed Sessions / Sessions Contribuées

CPB - Osmoregulation

Location: Bison – WCVN 2115

Room Chair: Katie Gilmour

OSMO-1 14:00	Culbert, B. , Mossington, E. M., McCormick, S. D., Bernier, N. J. University of Guelph Regulation of the gill corticotropin-releasing factor system during smolting and seawater acclimation of Atlantic salmon
OSMO-2 14:15	Baker, D. B. , Shartau, R. B. Vancouver Island University The role of water pH on acid base compensation during hypercapnia in white sturgeon (<i>Acipenser transmontanus</i>)
OSMO-3 14:30	Mackinnon, R. M. , Le, G. T. H., Montgomery, D. W., Negrete, B., Laronde, D., Richards, J. G., Brauner, C. J. University of British Columbia Developing larger Atlantic salmon (<i>Salmo Salar</i>) smolts for aquaculture: Can it be done?
OSMO-4 14:45	Liu, S. , Richards, J. G., Taylor, E. B. University of British Columbia Physiology and transcriptomics revealed putative local adaptation to fresh water in prickly sculpin (<i>Cottus asper</i>)
OSMO-5 15:00	Morris, C. , Martins, C., Zulian, S., Smith, S., Brauner, C.J., Wood, C.M. University of British Columbia The interactive effects of salinity and dissolved organic carbon on diffusive water flux, oxygen consumption, and nitrogenous waste excretion rates, as well as the electrical properties of the gill in Pacific sanddab (<i>Citharichthys sordidus</i>).
OSMO-6 15:15	Davidson, S.M. , Ferreira, P., Wilson, J.M., Wilkie, M.P. Wilfrid Laurier University Retention of sea water ionoregulatory machinery in an exclusively freshwater, non-parasitic lamprey

Thursday / jeudi
14:00- 15:30
Contributed Sessions / Sessions Contribuées

CPB - Toxicology 3 - Fish

Location: Eider – WCVM 2103

Room Chair: Tamzin Blewett

TOX3-1 14:00	Calik, D. M. , Lin, F., Kennedy, C. J., Johnston, E. F., Farrell, A. P., Gillis, T. E., Alderman, S. L. University of Guelph Elevated Temperatures Exacerbate Developmental and Latent Dilbit Toxicity in Coho Salmon (<i>Oncorhynchus kisutch</i>)
TOX3-2 14:15	Michaleski S. , Timlick, L., Langlois, V., Gutierrez Villagomez, J.M., Barron, M., Peters, L., Palace, V., Jeffries, K. University of Manitoba Diluted bitumen, UV radiation, and embryo fathead minnows: evaluating photo-enhanced toxicity through gene expression and deformity analysis from the IISD-ELA Freshwater Oil Spill Remediation Study (FOReSt).
TOX3-3 14:30	Sujith, C. , Edgar, M., Lin, F., Kennedy, C. J., Farrell A. P., Gillis, T. E., Alderman, S. L. University of Guelph Effects of diluted bitumen exposure on hypothalamus-pituitary-thyroid (HPT) axis and olfactory epithelium in Coho salmon (<i>Oncorhynchus kisutch</i>)
TOX3-4 14:45	Pfeifer, L. J. , Craig, P. M. University of Waterloo Fish on Antidepressants: The Troubling Tale of Venlafaxine Pollution in Our Waterways
TOX3-5 15:00	Caklec, J. , and Craig, P. M. University of Waterloo Investigating the inflammatory response in zebrafish following diurnal temperature and venlafaxine exposure
TOX3-6 15:15	Young, G. P. M. , Vijayan, M. M. University of Calgary The Stress Metabolome of Juvenile Rainbow Trout is Disrupted by Exposure to Municipal Wastewater Effluent and Urban Runoff

Thursday / jeudi
14:00- 15:30
Contributed Sessions / Sessions Contribuées

CPB - Endocrinology 3 – Metabolism

Location: Carp – WCVN 2105

Room Chair: Daniel MacPhee

Endo3-1 14:00	Tea, M. , Pan, Y. K., Perry, S. F., Gilmour, K. M. University of Ottawa Peripheral effects of serotonin transporter (Sert) knockout in zebrafish, <i>Danio rerio</i>
Endo3-2 14:15	Rajeswari, J. J. , Unniappan, S. University of Saskatchewan Tissue-specific modulation of growth- and gluco-regulatory factor mRNA abundance by nesfatin-1 and nesfatin-1 like peptide in goldfish
Endo3-3 14:30	Ojaghi, M. , Pamerter, M. E. University of Ottawa Regulation of glucose metabolism in naked mole-rats during hypoxia
Endo3-4 14:45	Schoen, A.N. , Weinrauch, A.M., Bouyoucos, I.A., Treberg, J.R., Wheaton, C.J., Mylniczenko, N., Anderson, W.G University of Manitoba Investigation of hormonal control of energy balance during the stress response in an elasmobranch fish.

**Thursday / jeudi
15:30-16:30**

**Boutilier Lecture / Conférence Boutilier
New Investigator Award**

Location: Arts 143

Chaired: Heather Jamniczky

Dr. Ken M. Jeffries

**Department of Biological Sciences
University of Manitoba**



Ken Jeffries got his start in research at the University of Calgary where he studied the effects of pollution on a highly abundant minnow in rivers in Southern Alberta. During that time he developed an interest in using gene expression patterns to understand stress responses in wild fishes. After conducting his BSc Honours and MSc work at the University of Calgary, he moved to Vancouver for his PhD at the University of British Columbia where he used microarrays to study the effects of high water temperature on wild adult Pacific salmon. From there he moved to the University of California, Davis for his postdoctoral work to use transcriptomics approaches to study the effects of contaminants on fishes in Northern California. While there he was fortunate to receive a Delta Science Fellowship to use RNA-sequencing to study the effects of drought-related thermal stress in endangered fishes in the San Francisco Estuary. Ken joined the University of Manitoba as a faculty member in 2016 where he has studied the effects of thermal or contaminant stressors on ectotherms in a variety of systems. This includes thermal stress on salmonids, sea lamprey and lake sturgeon, lampricide exposure on sea lamprey and bluegill, and wastewater effluent on clams in the Arctic to name a few. A fun fact about Ken is that he has played hockey since he could walk, including at the Junior A level, and he thinks hockey players today are too soft. He also has a 110 pound male rottweiler named Rocky, that like Ken, is an oversized, hairball with a heart of gold.

Friday, May 19th

9:30-12:30	Tour: Wanuskewin Heritage park	Bus meets outside Place Riel
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List of Volunteers

A.K.M. Munzurul Hasan

Ayicia Nabigon

Basirat Liadi-Azeez

Chinelo Uju

Evan Quick

Fatima Masood

Joanne Zachariah

Keisha Singh

Laura Dyson

Lily Buckles-Whittle

Mahesh Rachamalla

Md. Helal Uddin

Narsimha Pujari

Rehka Whittaker

Shruti Sasikumar

Sinan Zhang

Sravan Putnala

Vishnu Vinodanunni

Xander Slowenko

Mitra Sabetghadam