



The CORS Bulletin

VOLUME 50, NUMBER 3 – AUGUST 2016
ISSN 0315-1417

TABLE OF CONTENTS

PAGE

In This Issue	2
The 2016–2017 Council	3
Outgoing President's Message	4
Address of the Incoming President	6
Council Corner	7
CORS Award Winners	8
Harold Larnder Award: Dimitris Bertsimas	9
CORS Award of Merit: Jean-François Cordeau	10
Omond Solandt Award: WestJet, Calgary, AB	12
CORS Service Award: Corinne MacDonald	13
CORS Practice Prize: Émilie Dufour, Gilbert Laporte, Julie Paquette, Marie-Ève Rancourt	14
CORS Student Paper Competition	15
CORS Forestry SIG David Martell Student Paper Prize	17
CORS Health Care Operations Research SIG Student Paper Prize	19
CORS Queueing Theory SIG Student Paper Prize	20
2016–2017 CORS Budget	21
2015–2016 CORS Membership Report	22
2017 CORS/IFORS Conference in Quebec City, QC	24
CORS Special Interest Groups (SIGs)	25
CORS SIG News	26
CORS Sections News	28
CORS Funding Opportunities	29
Graduate Student Funding	29
Travelling Speakers Program	29
Job Posting: Island Health	30
Meetings and Conferences	31
The Next Issue	32
CORS Bulletin Translation Policy	32
CORS Bulletin Advertising Policy	32
CORS ListServ	32

IN THIS ISSUE

Dear CORS Members,

In this issue we welcome in a new CORS council and thank the previous council for their excellent work last year. The August issue gets the bonus of two presidents' messages as we hear from the incoming president, Dionne Aleman, and the outgoing president, Fredrik Ødegaard.

This issue also contains a comprehensive round up of the 2016 CORS conference in Banff, AB, including photos and writeups of our award winners. Congratulations to the winners and thank you to everyone who participated in another successful conference. CORS 2017 will be a joint venture with IFORS, which means even more content and activities, so mark **Jul 17-21, 2017** on your calendars and join everyone in Quebec City.

Lastly, the issue finishes with the new 2016/17 budget, and the latest membership report.

If you have content you would like to see in the next bulletin, please submit it to me at AndreaFriars@gmail.com

Cheers,

Andrea Friars

Editor

<u>Editor</u>	Andrea Friars
<u>Publisher</u>	CORS/SCRO Box/C.P. 2225, Station D Ottawa, ON K1P 5W4
<u>Distributor</u>	Erla Anderson
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Vice-President	Louis-Martin Rousseau
Past-President	Fredrik Ødegaard
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Past Presidents Advisory Board	Dionne Aleman, Fredrik Ødegaard, Peter Bell, David Martell, Rick Caron
SIG	Louis-Martin Rousseau
Section Relations	Anjali Awasthi, Tatsiana Levina, Sonia Vanderby
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Student Paper Competition	TBA
Award of Merit	Fredrik Ødegaard, Jean-François Cordeau, Tamás Terlaky
Financial Planning	Sonia Vanderby, Fredrik Ødegaard, Dionne Aleman, Louis-Martin Rousseau
Analytics	Tatsiana Levina, Peter Bell, Marie-Claude Côté
Industry	Dionne Aleman, Fredrik Ødegaard, Hatem Ben Amor
Nominating Travelling Speakers Program	Fredrik Ødegaard Fredrik Ødegaard
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THE 2016–2017 COUNCIL

CORS Council is made up of the officers of the society, four councillors, the immediate past president, a representative designated by each local section of the society, and the standing committee chairs. Contact information for 2016–2017 council representatives is provided below. For a complete listing go to <http://www.cors.ca>

President	Dionne Aleman, University of Toronto, aleman@mie.utoronto.ca
Vice-President	Louis-Martin Rousseau, École Polytechnique de Montréal, louis-martin.rousseau@polymtl.ca
Secretary	Peter VanBerkel, Dalhousie University, peter.vanberkel@dal.ca
Treasurer	Sonia Vanderby, University of Saskatchewan, sonia.vanderby@usask.ca
Past-President	Fredrik Ødegaard, University of Western Ontario, fodegaard@ivey.uwo.ca
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Councillor	Michael Pavlin, Wilfrid Laurier University, mpavlin@wlu.ca
Councillor	Stanko Dimitrov, University of Waterloo, sdimitro@uwaterloo.ca
Councillor	Anjali Awasthi, Concordia University, anjali.awasthi@concordia.ca
Atlantic	Claver Diallo, Dalhousie University, claver.diallo@dal.ca
Quebec	Irène Abi-Zeid, Université Laval, irene.abi-zeid@osd.ulaval.ca
Montréal	Louis-Martin Rousseau, École Polytechnique de Montréal, louis-martin.rousseau@polymtl.ca
Ottawa	Dragos Calitoiu, Bank of America, Ottawa, calitoiu@optimod.ca
Kingston	Jeffrey I. McGill, Queen's University, jmcgill@business.queensu.ca
Toronto	Joseph Milner, University of Toronto, milner@rotman.utoronto.ca
Southwest Ontario	Joe Naoum-Sawaya, University of Western Ontario, jnaoum-sawaya@ivey.ca
Winnipeg	Currently vacant
Saskatoon	Winfried Grassmann, University of Saskatchewan, grassman@cs.usask.ca
Calgary	Mozart Menezes, University of Calgary, mozart.menezes@haskayne.ucalgary.ca
Edmonton	Armann Ingolfsson, University of Alberta, armann.ingolfsson@ualberta.ca
Vancouver	Stuart Donald, University of British Columbia, stuart.donald@sauder.ubc.ca
Toronto Student	Justin J. Boutilier, University of Toronto, j.boutilier@mail.utoronto.ca
Waterloo Student	Abdelhalim Hiassat, University of Waterloo, ahhiassat@uwaterloo.ca
Quebec Student	Samira Abbasgholizadeh Rahimi, Université Laval, samiraheme@yahoo.com

OUTGOING PRESIDENT'S MESSAGE

Greetings and Salutations fellow CORS members!

Let me first of all thank the organizing committee Diane Bischak, Osman Alp, and Marco Bijvank, conference organizer Mireille Faucon, and all volunteers for bringing us to the spectacular scenery of Banff and the hosting of yet another great CORS conference. As I mentioned at the AGM, while some people collect wine, stamps, cigar boxes, etc., I collect CORS conferences. Although I always enjoy the CORS conference there are some vintages that are a bit better than others – which like wine seem to get better with age. And indeed, as my palates and I reflect, the 2016 CORS Banff conference will for sure be one of my favorites as it contained a perfect bouquet of good technical sessions, interesting plenaries, awe inspiring nature, great facilities, new friends and network connections, and reunion with old friends and colleagues to form more great memories (usually over malted beverages).



The year as CORS President has been stimulating and very busy, and seems to have swooshed by. Fortunately I had good colleagues on Council to rely on and I am glad to report that we managed to accomplish a lot. The biggest of which was the move of INFOR from UT Press to Taylor & Francis. Although this presents a new beginning and provides a platform for establishing INFOR as a top OR journal, I want to remind you that the larger and more important responsibility still remains collectively with us. Namely, that we submit our good work. Simple back-of-envelope analysis suggests that if each CORS member were to submit one article every four years (!) we would have about 100 submissions per year. At four issues per volume, and any reasonable rejection-level, this would provide each issue with solid articles and establish INFOR as a by consensus top quality journal.

Reflecting back on the year, one of my main objectives as CORS President was to ensure the continued involvement with industry and to further extend the reach of Operations Research. Like most of you – I assume – I was not aware of the large industry and business involvement CORS members actually have. Many of us, both formally and informally, are engaged with industry and help solve real business problems. And so to that extent CORS, through its members, is already doing a great job. However, what we can certainly improve on is to more broadly share and publicize our involvement, e.g. through social media, the CORS Bulletin, and conference presentations. In particular with regard to the latter given the vast industry involvement that actually takes place it is a bit disheartening that we don't have more entries to our annual Practice Prize Competition. I encourage all of you to submit your applied work and if you have feedback on how to improve the competition please email anyone on CORS Council.

Founded in 1958 CORS is approaching 60 and looking back at our rich history it has been quite a journey – both as a society but also as a subject matter. The OR developments over the past

decades have been impressive and it is with much anticipation I look forward to what the future holds. Obviously computing power has had a dramatic impact and markedly changed our size perception of problems. However, it seems we are still challenged by the same operational problems as decades ago. Case in point, I recall a conversation I had a few years ago with 1993 Harold Larnder Award recipient Professor Pierskalla. I was telling him about a recent OR paper on nurse scheduling to which he quipped: “Are they still working on nurse scheduling? We worked on that in the early 70ies!” Indeed, much has changed yet much remains the same. Moving forward and with the *buzz* regarding big data and analytics it will be interesting to see how the operational problems will change and how we model them. It will also be interesting to see how CORS will evolve – but let us save those musings for the diamond anniversary in Halifax.

Let me conclude by thanking Dionne, Sonia, Manish, Mehmet, Taraneh, Samir, Elkafi, Tanya, Michael, Satyaveer, and Erla for all their help with CORS and the Council this past year. I wish Dionne and the new CORS Council all the best. In particular, I look forward receiving Dionne’s @CORS_President tweets.

J'espère vous voir tous au Québec and in the immortal words of the IP when splitting the loot from the bank heist with the LP:

Hey, don't forget about Bender's cut!!



Fredrik Ødegaard



Past-President Ødegaard at the 2016 CORS banquet

ADDRESS OF INCOMING PRESIDENT

Hello fellow CORS members,

It is a great honour to serve CORS/SCRO as the 2016-17 President, and I hope to continue CORS' upward trajectory set in motion by a long line of distinguished Past Presidents. In particular, I would like to thank outgoing President Fredrik Ødegaard for his hard work over the past year, which most notably includes establishing a social media footprint for CORS (check us out at @CORS_President!) along with a new, modernized website.

I would additionally like to thank my fellow 2016-17 Council members, without whom CORS would grind to a halt: Vice President Louis-Martin Rousseau; Secretary Peter Vanberkel; Treasurer Sonia Vanderby; Publications Chair Samir Elhedhli; Education Chair Mehmet Begen; and Councillors Tanya Levina, Stan Dimitrov, Anjali Answathi, and Michael Pavlin.

Erla Anderson, our Membership Services Provider, continues to provide an invaluable service managing our members, listserv, and website. I look forward to working with all of you this year to keep CORS great.



My strategic focus for the coming year will be to continue our existing pushes towards improved industry involvement, analytics incorporation, web/social media presence, and INFOR revitalization. As part of the web presence initiative, we have already established an official CORS Flickr account in addition to our Twitter account and new website, and we are in the process of creating official websites for SIGs, sections, and chapters. One new focus will be on the collection and archiving of historical records; if you have anything to share about the history and development of CORS (photos, personal recollections, etc.), please let me know!

I am looking forward to great strides with the INFOR journal under co-Editors-in-Chief Samir Elhedhli and Elkafi Hassini's leadership, and with the new online submission system, on-schedule publishing, and new area specialties, INFOR will only go up in impact factor. So, send in your papers to INFOR; think of it as an investment. I have already submitted one of my papers to INFOR to support CORS and our journal of great Canadian operations research; you should, too!

In addition to contributing back to our journal, I encourage everyone to contribute back to CORS. **Get involved!** Especially students and junior faculty. We have SIGs, local sections, student chapters, conference organization teams, and Council; there are tons of opportunities to demonstrate your leadership and have your voice heard! There is no better way to network and meet people both in your area and outside your area than to volunteer. Send me an email or drop me a tweet to get connected and start giving back to CORS.

This year's conference in Banff has set the bar high---big congratulations go to 2016 General Chair Diane Bischak and Program co-Chairs Osman Alp and Marco Bijvank. Next year's conference organizing committee (Irène Abi-Zeid, Bernard Gendron, and Angel Ruiz) has big shoes to fill! As a reminder, the 2017 CORS conference in Québec City is jointly held with IFORS. This will be our third time being honored with the triennial IFORS conference, with the last time being in 1996. The conference will be **twice as long** and **twice the size** of our usual conference, with a **full-day excursion** and lots of networking events. Start planning your travel schedule now to take advantage of this amazing conference opportunity.

I look forward to seeing everyone in Québec City next July! Vive la CORS/SCRO!



Dionne Aleman
@CORS_President

COUNCIL CORNER

This section of the CORS Bulletin will highlight recent discussions by the CORS Council and motions of particular interest that have been passed.

- CORS has a new website www.cors.ca

CORS AWARD WINNERS

Congratulations to the winners of the awards and prizes presented at CORS 2016 in Banff, AB. Special thanks to all the participants and judges. Details on CORS awards and prizes, including a list of past winners, can be found on the CORS website <http://www.cors.ca>

Harold Larnder Prize	Dimitris Bertsimas
CORS Award of Merit	Jean-François Cordeau
Omond Solandt Award	WestJet, Calgary, AB
CORS Service Award	Corinne MacDonald

CORS Practice Prize

Émilie Dufour (HEC Montréal), **Gilbert Laporte** (HEC Montréal), **Julie Paquette** (HEC Montréal), **Marie-Ève Rancourt** (Université du Québec à Montréal)

“Logistics service network design for humanitarian response in East Africa”

Student Paper Competition Open Category

First Prize

Yun Zhou (University of Toronto) “Dynamic Type Matching”

Honourable Mention

Amir Ardestani-Jaafari (HEC Montréal) “The Value of Flexibility in Robust Location-Transportation Problems”

Ahmed Saif (University of Waterloo)

“Cold supply chain design with environmental considerations: A simulation-optimization approach”

Student Paper Competition Undergraduate Category

First Prize

Taha Mirza, Rupan Dandiwal, Shayan Altaf, Brady Lee (University of Waterloo)

“To Drone or Not to Drone: Investigating Drone Deliveries”

Honourable Mention

Oshane Jackson, Ismael Martinez (Simon Fraser University)

“A Queueing Network Model for Refugee Language Courses in Vancouver”

Brianna Horton, Constance Gervais, Danielle Shawcross, Juliana Gonzalez (University of Waterloo)

“Reducing Blood Distribution Costs for Canadian Blood Services”

CORS Forestry SIG David Martell Student Paper Prize in Forestry

Rezvan Rafiei “Dynamic Safety Stock in Co-production Demand-Driven Wood”

Tassedra Boukherroub “A Framework for Sustainable Forest Resource Allocation: A Canadian Case Study”

CORS Health Care Operations Research SIG Student Presentation Prize

First Prize

Yangzi Jiang (University of Waterloo)

“An Empirical Study of Allocation Scheduling and Advanced Scheduling for MRI Patients”

Honourable Mention

Hootan Kamran (University of Toronto)

“Identification of Flu Hubs Using a Scale-Free Network of Flu Distances”

Vahid Roshanaei (University of Toronto)

“Logic-based Benders' Decomposition Approaches For Distributed Operating Room Scheduling”

CORS Queueing Theory SIG Student Paper Prize

Jianfu Wang (University of Toronto) “M/M/c Queue with Two Priority Classes”

HAROLD LARNDER AWARD

Dimitris Bertsimas



CORS President Fredrik Ødegaard (R) presents the Harold Larnder Award to Professor Dimitris Bertsimas (L)

Dimitris Bertsimas is a Professor of Operations Research and Statistics at the Sloan School of Management, MIT, where he has spent his predominant academic career. He first joined as a student, receiving both his master (1987) and PhD (1988) degrees in Operations Research, and subsequently in 1988 joined as a faculty member (Assistant Professor 1988, Associate Professor 1992, Professor 1995). He currently holds the Boeing Leaders for Global Operations Professor chair, and is Co-Director of the Operations Research Center at MIT. In addition to his tenure at MIT, Professor Bertsimas has been a Visiting Professor at Stanford University and U.C. Berkeley. Dr. Bertsimas' main research interests include optimization, applied probability and statistics, with applications in health care, transportation and finance. He has published 150+ articles, 20 conference proceedings and 4 books, supervised 9 Post-Docs, 50+ PhD and 30 Master students, given numerous plenary lectures, and received several prestigious awards in recognition of his work. Professor Bertsimas has served on several award and editorial boards, and is currently Area Editor for Optimization at Management Science. The title of his Harold Larnder Memorial Lecture was "Health Care Analytics".

CORS AWARD OF MERIT Jean-François Cordeau



Taraneh Sowlati (L) presents the CORS Award of Merit to Jean-François Cordeau (R)

Dear CORS members,

I am delighted to announce that the Merit Award Committee received many excellent nominations this year. I want to thank those who put in the time and effort to nominate their fellow colleagues.

While the Committee was impressed by the nominees' outstanding achievements, the decision was not difficult. It is my honour to reveal that the Committee unanimously chose Dr. Jean-François Cordeau as this year's winner due to his outstanding contributions to the profession of Operational Research.

Jean-François Cordeau received his Ph.D. in Applied Mathematics from École Polytechnique de Montréal in 1999. He is a full professor and holds the Chair of Logistics and Transportation at HEC Montréal. He is a member of the Interuniversity Research Centre on Enterprise Networks, Logistics and Transportation (CIRRELT) and the Group for Research in Decision Analysis (GERAD). He is also a consultant who has worked for a number of private and public Canadian and European organizations.

Dr. Cordeau's research is focused on the area of combinatorial optimization. He has published more than 110 scientific articles and has written 8 book chapters on transportation and logistics optimization. He is also the Associate Editor of "IIE Transactions" and "Transportation Science", and the Editorial Board member of "Computers & Operations Research".

Jean-Francois Cordeau's other related activities include serving as the member of the program committee, member of the scientific committee, and co-organizer of a number of national and international conferences and workshops. He has supervised more than 60 graduate students and has received a number of prizes and distinctions for his great achievements. In 2009, he and his colleagues won the First Prize in the ROADEF Challenge on Disruption Management for Commercial Aviation. Recently, in 2014, he became a member of the College of New Scholars, Artists and Scientists of the Royal Society of Canada.

With all these achievements, there is no doubt that Jean-Francois deserves this award.

Congratulations Jean-Francois!

Taraneh Sowlati, Chair of Merit Award Committee

OMOND SOLANDT AWARD WestJet

Established in 1996 in Western Canada, WestJet has grown from three aircraft serving five cities to a current fleet of 147 aircraft serving a network of over 100 destinations in North America, Central America, the Caribbean and Europe.

WestJet's initial operations were handled largely on the basis of spreadsheets, small databases and other relatively simple tools, but with its growth came an increase in the complexity of operating a continuously evolving network. As a result, the Operations Research team was established in 2007.

A large part of the first year was spent undertaking the first few studies to prove the benefits of an OR approach, including simulation models, optimizations and a demand forecaster. These models proved the benefits of OR and led to the team being involved in virtually all areas of the company. Over the years, the WestJet OR team has also given numerous presentations at the Universities of Calgary, Toronto and Waterloo and sponsored many student projects to help aspiring OR practitioners gain real world experience.



CORS SERVICE AWARD Corinne MacDonald

The CORS Service Award recognizes members of the Society who have made outstanding contributions of time and service to the Society.

Corinne MacDonald is the recipient of the 2016 CORS Service Award, presented at the CORS Annual Conference in Banff, Alberta. Prof. MacDonald is an Associate Professor in the Department of Industrial Engineering at Dalhousie University. She served as CORS President in 2013, Vice-President in 2012, and Secretary 2009-2010. She additionally served as a Council member, and has emceed the CORS Banquet. Prof. MacDonald is currently involved in the organization of the 2018 CORS Annual Conference.



Dionne Aleman (L) presents the CORS Service Award to Corinne MacDonald (R)

CORS PRACTICE PRIZE

The CORS Practice Prize recognizes an outstanding application of operational research that has had a significant, verifiable, and quantifiable impact on the performance of the client organization. The judging team awarded first prize to team members Émilie Dufour (HEC Montréal), Gilbert Laporte (HEC Montréal), Julie Paquette (HEC Montréal), and Marie-Ève Rancourt (Université du Québec à Montréal) for the project “Logistics service network design for humanitarian response in East Africa”.



Corinne MacDonald (L) presents the CORS Practice Prize to Marie-Ève Rancourt (R)

CORS STUDENT PAPER COMPETITION

Open Category

The First Prize was awarded to Yun Zhou (University of Toronto) for the paper “Dynamic Type Matching”. The Honourable Mention was awarded to Amir Ardestani-Jaafari (HEC Montréal) for the paper “The Value of Flexibility in Robust Location-Transportation Problems” and to Ahmed Saif (University of Waterloo) for the paper “Cold supply chain design with environmental considerations: A simulation-optimization approach”.



Undergraduate Category

The First Prize was awarded to team members Taha Mirza, Rupan Dandiwal, Shayan Altaf, and Brady Lee (University of Waterloo) for the paper “To Drone or Not to Drone: Investigating Drone Deliveries”. The Honourable Mention was awarded to team members Oshane Jackson and Ismael Martinez (Simon Fraser University) for the paper “A Queueing Network Model for Refugee Language Courses In Vancouver” and to team members Brianna Horton, Constance Gervais, Danielle Shawcross, and Juliana Gonzalez (University of Waterloo) for the paper “Reducing Blood Distribution Costs for Canadian Blood Services”.



CORS FORESTRY SIG

David Martell Student Paper Prize in Forestry

Rezvan Rafiei and Tassedra Boukherroub

The David Martell Student Paper Prize in Forestry recognizes outstanding scientific contributions on the theory, methodology and/or practice of operations research in forestry/forest products industry. The competition is for the best student paper submitted, published or accepted for publication in a peer-reviewed journal in the last two years.

In the 3rd edition of the prize (2016), the judging team, composed by David Martell (University of Toronto), Mikael Rönqvist (Université Laval), Taraneh Sowlati (University of British Columbia) and Jean-François Audy (Université du Québec à Trois-Rivières) selected 3 finalists to present their work at the CORS/INFORMS International Meeting: Amine Amrouss (Université de Montréal), Rezvan Rafiei (Université Laval), and Tassedra Boukherroub (Université Laval).

The First Prize (tie) was awarded to Tassedra Boukherroub for the paper “A framework for sustainable forest resource allocation: A Canadian case study” to be published in 2016 in *Omega*, and Rezvan Rafiei for his paper “Dynamic safety stock in co-production demand-driven wood remanufacturing mills: A case study” published in 2015 in the *International Journal of Production Economics*.

Boukherroub, T., LeBel, L., Ruiz A., 2016. A framework for sustainable forest resource allocation: A Canadian case study. *Omega*. In press.

Abstract: This paper addresses the problem of public-owned forest resource allocation observed in Canada. An integrated framework based on mill abilities to create value (expressed as economic, environmental and social benefits) is proposed. It encompasses three phases: (1) election of sustainable allocation criteria, (2) evaluation of mill performance with regard to the allocation criteria and (3) allocation of wood volumes according to mill performance. The framework is applied to a case study proposed by Ministry of Forests, Fauna and Parks (MFFP) in Québec. It is implemented as follows: first, the international standards, Forest Stewardship Council (FSC) and Global Reporting Initiative (GRI) are used to identify relevant allocation criteria covering the three sustainability dimensions (economy, environment and society). Second, the Group-Analytic Hierarchy Process (Group-AHP) is used to weight the allocation criteria and evaluate mill sustainability performance. Finally, optimization models are formulated to allocate the wood following two strategies: (1) maximizing the total created value by all mills and (2) promoting inter-firm fairness. The numerical results show that integrating sustainability concerns in the evaluation process has a significant impact on the allocation decisions. Moreover, adopting a wood allocation strategy seeking to guarantee fairness between forest companies is a win-win strategy as it also leads to maximizing the created value with a minimum deviation from the optimal targeted value. Lessons learned from this collaboration with MFFP are presented in order to help other interested researchers and public organizations develop their own roadmap to sustainable public resource allocation.

Rafiei, R., Nourelfath, M., Gaudreault, J., De Santa-Eulalia, L.A., Bouchard, M., 2015. Dynamic safety stock in co-production demand-driven wood remanufacturing mills: A case study. *Int. J. Production Economics* (165), 90-99.

Abstract: This paper studies the production planning problem of a wood remanufacturing mill involved with uncertain demands, a co-production system, sequence-dependent setup times and finite production capacity. The objective is to increase the service level and to keep the stock in a reasonable size. A mathematical model which includes a sequence-dependent setup time formulation is sketched as a base case. It is used with a periodic re-planning strategy. Then, in order to benefit from the idle production capacity, we propose a two-phase method combined with the periodic re-planning strategy. This method uses the idle production capacity in each period to build up safety stocks for the most important products. A simulation model is proposed to compare the performance of three variations of the method using industrial data. Numerical results indicate that the solutions of the proposed two-phase method are superior to the optimal solution of the base case model. Moreover, it is found that although the entire production capacity is used in the two-phase method, the stock size is negligibly augmented in the co-production system.

Students are encouraged to get ready and participate during the 4th edition of the prize by completing the writing of their relevant papers!



CORS HEALTH CARE OPERATIONS RESEARCH SIG Student Paper Prize

First Prize: Yangzi Jiang

Honourable Mention: Hootan Kamran and Vahid Roshanaei

First Prize was awarded to Yangzi Jiang (University of Waterloo) for the paper “An Empirical Study of Allocation Scheduling and Advanced Scheduling for MRI Patients”. Honourable Mention was awarded to Hootan Kamran (University of Toronto) for the paper “Identification of Flu Hubs Using a Scale-Free Network of Flu Distances” and to Vahid Roshanaei (University of Toronto) for the paper “Logic-based Benders' Decomposition Approaches For Distributed Operating Room Scheduling”.



CORS Queueing Theory SIG Student Paper Prize

Jianfu Wang

The fourth annual Student Paper Prize was awarded at the business meeting in Banff. This year's winner is Jianfu Wang (University of Toronto), for his paper "M/M/c queue with two priority classes" co-authored with Opher Baron and Alan Scheller-Wolf. The judging team of Sapna Isotupa (Wilfred Laurier University), Armann Ingolfsson (University of Alberta), and Myron Hlynka (University of Windsor) were pleased and impressed with the quality of the four submissions received this year.



2016–2017 CORS BUDGET

	2015-16	2016-17
	Budget	Budget
Receipts		
Membership Dues	40,000.00	40,000.00
Conference Profit	25,000.00	10,000.00
INFOR Royalty/Profit	5,000.00	3,000.00
Miscellaneous	0.00	11,000.00
Total Receipts	\$70,000.00	\$64,000.00

	Budget	YTD	Commitments	Budget
Expenses				
Administrative Expenses:				
<i>Administrative Support (Contract)</i>	12,000.00	12,000.00		12,000.00
<i>Supplies and Other Expenses</i>	2,000.00	839.47		2,000.00
Translation services (Bulletin, website)	2,500.00	1,350.13		2,500.00
Council Meeting	4,000.00	502.06		4,000.00
Sections Shares of Dues	3,000.00	6,153.00		3,000.00
Sections Shares of Conference Profit	1,750.00	0.00	2300.00	1,500.00
INFOR Journal	8,000.00	16,076.57		12,500.00
IFORS Subscription	500.00	505.84		500.00
Conference Expenses (Larnder, etc.)	3,000.00	13,855.41		3,000.00
Awards/Prizes for Competitions	3,600.00	1,500.00		3,600.00
Travelling Speaker Program/CORS Events	2,000.00	1,000.00	990.15	2,000.00
GST/HST	2,000.00	0.00		2,000.00
Bank and Credit Card Charges	2,000.00	358.63		1,000.00
Web Services	5,500.00	517.10		5,025.00
CORS Grad Student Conference Funding	8,000.00	3,550.00	7725.00	8,000.00
Unassigned		2,318.90		
Total Expenses	59,850.00	60,527.11		62,625.00
Expected Profit/Loss	\$10,150.00	\$17,578.87		\$1,375.00

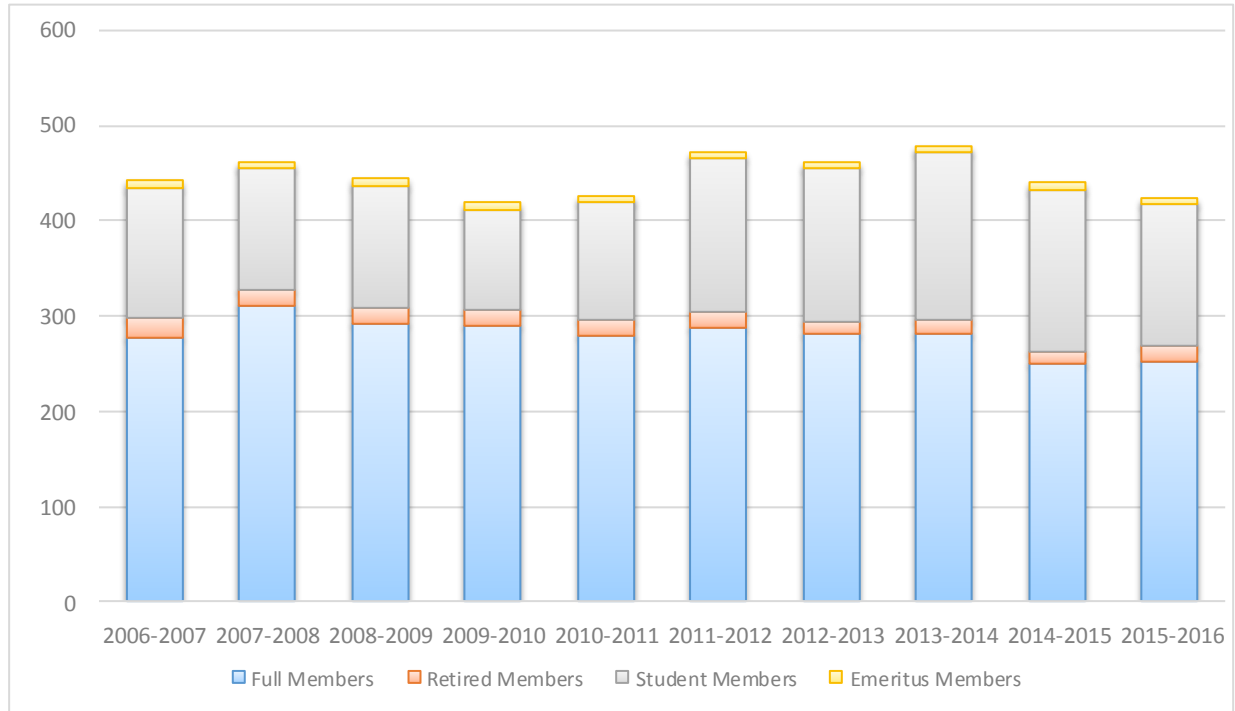
2015–2016 CORS MEMBERSHIP REPORT

I am pleased to submit a copy of the 2015–2016 Annual Membership Report of the Canadian Operational Research Society, which documents the membership activities experienced by the Society over the past year, for the consideration of CORS Council. The report provides Council with the information it needs to assess the health and well-being of the Society; to monitor the effectiveness of membership processes and practices; and to identify areas where policy initiatives or changes may be required. This report reveals that CORS experienced a decrease in membership in 2015–2016 of 3.6%. These graphs summarize the report, which can be seen in full on the CORS website <http://www.cors.ca>

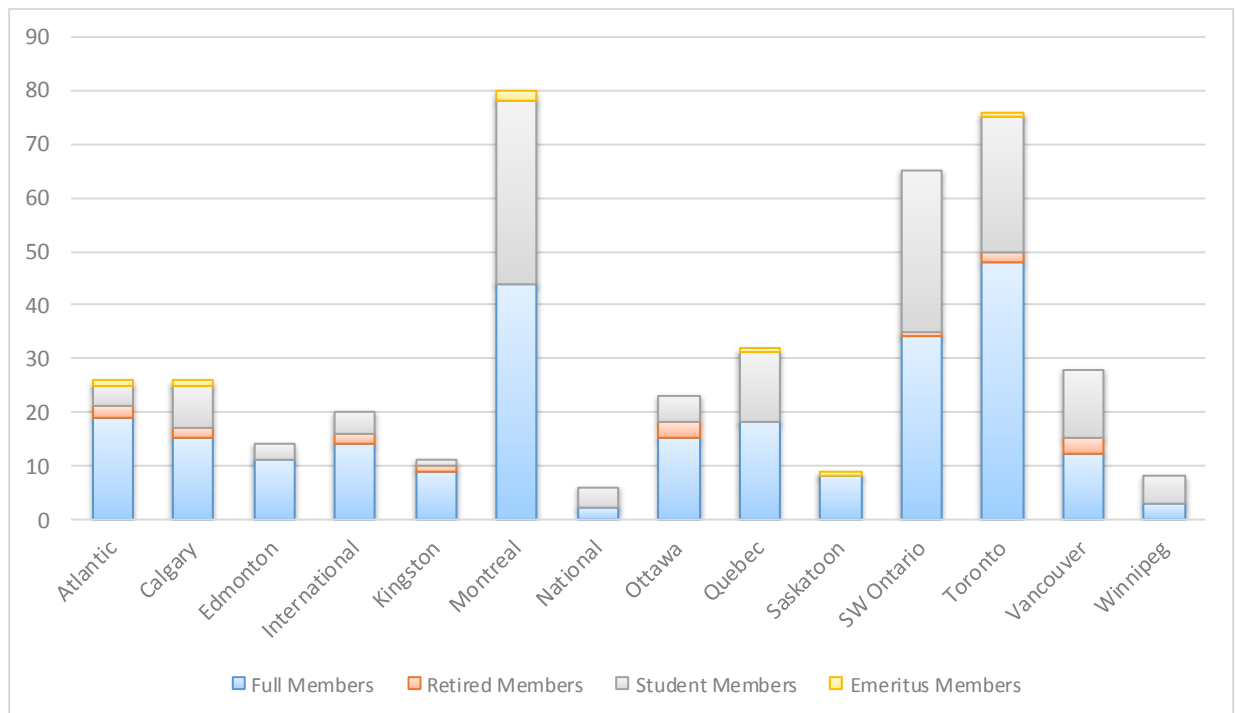
CORS Membership 2006-2016



CORS Membership by Member Type 2006-2016

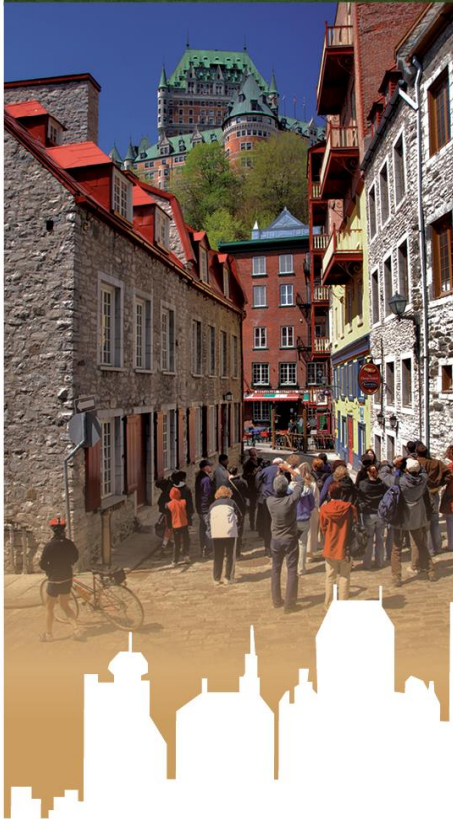


CORS Membership by Section and Member Type March 31, 2016





Save the date



IFORS 2017

July 17-21, 2017

Join us in Québec City!



IFORS2017.CA

21st conference of the
International Federation of Operational
Research Societies

hosted by CORS

CORS SPECIAL INTEREST GROUPS (SIGs)

CORS Council approved a policy on Special Interest Groups (SIGs). A SIG provides a mechanism to promote CORS, the SIG area and the SIG members, as well as the opportunity for CORS members with common interests to interact and network.

SIGs formed so far include:

CORS Forestry SIG:

contact Claudia Cambero (claudia.cambero@fpinnovations.ca)

Modeling and Decision Support Group, FPInnovations

<http://cors-forestrysig.pieorswirls.com/>

CORS Health Care Operational Research SIG:

contact Armann Ingolfsson (armann.ingolfsson@ualberta.ca)

Alberta School of Business, University of Alberta

CORS Queueing Theory SIG:

contact Steve Drekić (sdrekić@uwaterloo.ca)

University of Waterloo, Department of Statistics & Actuarial Science

<https://uwaterloo.ca/canadian-operational-research-society-queueing-special-interest-group/>

If you would like to join a SIG, contact the people listed above, or indicate that you would like to join when you renew your CORS membership.

CORS encourages members with common interest in an area within or related to operational research to form additional SIGs. More information about SIGs can be found online at <http://www.cors.ca/?q=content/communities>. Discussions are underway about forming SIGs in several additional areas. If you are interested in forming a SIG in a particular area, feel free to contact

SIG Committee Chair, Louis-Martin Rousseau (louis-martin.rousseau@polymtl.ca)

CORS SIG NEWS

Forestry

The OR in forestry cluster program at the CORS 2016 was a great success with 30 talks split into 8 regular sessions and the two special sessions:

- “Eldon Gunn Special Session” to acknowledge the contributions of Dr. Eldon Gunn to Strategic Forest Planning with presentations from Evelyn Richards (UNB), David Martell (UofT) and Corinne MacDonald (DalhousieU), and chaired by Evelyn Richards.
- “2016 David Martell Student Paper Prize in Forestry Special Session” with presentations from finalists Amine Amrouss (Université de Montréal), Rezvan Rafiei (Université Laval), and Tassedra Boukherroub (Université Laval).

The Forestry SIG wants to thank the participation of all speakers and acknowledges the cluster co-chairs, Taraneh Sowlati (UBC) and Claudia Cambero (UBC) for their great work in organizing the cluster program this year, and to the session chairs, Mikael Rönqvist (ULaval), Shaghaygh Akhtari (UBC), David Martell (UofT), Catalin Ristea (FPInnovations), Marian Marinescu (FPInnovations), Jean-François Audy (UQTR), Mustapha Ouhimmou (ÉTS), and Taraneh Sowlati (UBC), for their valuable participation.

The jury of the 2016 David Martell Student Paper Prize in Forestry (David Martell, Mikael Rönqvist, Taraneh Sowlati and Jean-François Audy) acknowledges the high quality of the work presented by the three finalists. They congratulate the winners of this year’s prize, Tassedra Boukherroub and Rezvan Rafiei.

During the 2016 FSIG annual meeting, the Forestry SIG reviewed the activities and initiatives since the last annual meeting (e.g. use of communication tools, progress of the INFORMS special issue) and discussed the creation of the new FSIG website hosted in the CORS website. For further information of the Forestry SIG, or if you would like to join the Forestry SIG, please contact Claudia Cambero (claudia.cambero@fpinnovations.ca).

Health Care Operations Research

HCOR SIG Website – coming soon!

Justin Boutilier and the rest of the officers are busy getting content ready to launch our very own HCOR SIG website. It will be hosted by CORS and using the new templates for the website. Stay tuned for details on when it will be launched.

Bylaws – Approved

Amended bylaws were approved at the annual HCOR SIG meeting in Banff in May. If you would like a copy of the amended bylaws, please contact our SIG president, Sonia Vanderby (sonia.vanderby@usask.ca).

Annual Members Meeting

The HCOR SIG had their annual members meeting during the CORS conference against a majestic backdrop of the Canadian Rocky Mountains in Banff. If you missed the meeting and would like to get a copy of the minutes, please contact the HCOR secretary Justin Boutilier (j.boutilier@mail.utoronto.ca).

Upcoming Conferences and call for session organisers

INFORMS 2016 - The INFORMS meeting is scheduled for Nov. 13-16 in Nashville.

CORS/IFORS 2017 – Next year's CORS conference is being held in conjunction with IFORS from July 17-21, 2017 in Quebec City, QC. It promises to be a great event with many international colleagues in attendance. If you are interested in organising a session, please contact Peter Vanberkel (peter.vanberkel@dal.ca).

Queueing Theory

The *Queueing Theory* cluster (chaired by Steve Drekic), in conjunction with the *Applied Probability and Stochastic Optimization* cluster (chaired by Opher Baron), at the CORS Conference in Banff was a great success featuring 5 queueing-themed sessions and 2 tutorial talks. Special thanks go out to all speakers and session chairs for their valuable contributions.

The forth annual Student Paper Prize was awarded at the business meeting in Banff. This year's winner is Jianfu Wang (University of Toronto), for his paper "*M/M/c queue with two priority classes*" co-authored with Opher Baron and Alan Scheller-Wolf. The judging team of Sapna Isotupa (Wilfred Laurier University), Armann Ingolfsson (University of Alberta), and Myron Hlynka (University of Windsor) were pleased and impressed with the quality of the four submissions received this year.

Also at this business meeting, Queueing SIG member Doug Down spoke of the upcoming CanQueue 2016 Conference, which will take place on August 22nd and 23rd at McMaster University in Hamilton, Ontario. Professor Mor Harchol-Balter from Carnegie Mellon University will be the keynote speaker. More information can be found by visiting the conference website at www.cas.mcmaster.ca/canqueue/index.html.

Finally, if you would like to join the Queueing Theory SIG, please contact Steve Drekic (sdrekic@uwaterloo.ca).

CORS SECTIONS NEWS

Montreal



The Montreal Operations Research Student Chapter (MORSC) held its inaugural event at Concordia University on May 5, 2016. With over 50 attendees comprised of students and faculty from different universities in Montreal, the organizing committee explained the origins, vision and mission of the chapter. They presented the calendar of activities for summer 2016 and unveiled their website (www.mtl-students.com). The chapter's website will serve as both a means of keeping members up to date on upcoming events and as a source for accessing online resources such as video tutorials, source codes and seminar presentations.

In addition to detailing their scope, plan of action and communication means, a brief overview of Montreal's contributions to Operations Research (O.R.) was given by Dr. Ivan Contreras, recipient of the Chuck ReVelle Rising Star Award in Location Analysis from INFORMS and Faculty Advisor of the chapter. He highlighted the impact of O.R. in the world and provided substantial evidence that supports Montreal being one of the top cities in the world to study and practice Operations Research.

The event concluded with a talk by Mr. Majid Bazrafshan, M.A.Sc, former student at Concordia University and currently Lead Consultant of Global Optimization practice at FICO. He explained the use of the Xpress solver for Industry projects around the world and the requirements and deliverables expected by these companies from an O.R. consultant.

MORSC is an initiative piloted by students in Montreal. It is currently under the umbrella of the CORS Montreal Chapter and is in close collaboration with the student committees in Group for Research in Decision Analysis (GERAD) and InterUniversity Research Center on Enterprise Networks, Logistics and Transportation (CIRRELT). Membership to the chapter is free of cost and its model is based on the participation of its members to share knowledge in their field of expertise through the means provided by the chapter.

The Chapter's vision is to be the primary channel for knowledge sharing and networking in the O.R student community of Montreal by providing an integrated place where knowledge is to be shared via research seminars, workshops, software tutorials and online resources such as sample source codes, scripts and video tutorials.

CORS FUNDING OPPORTUNITIES

Graduate Student Funding

CORS funds graduate students attending CORS annual meetings, using funds from SSHRC, when available. This funding is subject to availability and the following eligibility criteria:

- Student is a member of CORS
- Student is enrolled in a graduate program in a field related to operational research
- Student is studying at a Canadian university, or student is a Canadian citizen or permanent resident studying abroad

The following criteria will be used to determine the amount awarded to each eligible applicant:

- If the applicant is presenting a paper at the conference
- Travel cost from student's home city to the conference

For further information, contact

Graduate Student Funding Coordinator, Mehmet Begen (mbegen@ivey.uwo.ca)

Traveling Speakers Program

The Traveling Speakers Program (TSP) enables local sections to bring Canadian OR practitioners / researchers as speakers to their local events. In order to keep costs in line while maximizing the CORS national profile, CORS sponsorship will be limited to 50% of the total expenses, up to a maximum of \$500 per speaker or \$1000 for a single event (conference, workshop). Other expenses can be covered by the local section. The program of the event must acknowledge the contribution of CORS. Each local section must contact the TSP coordinator to obtain approval for funding preferably at least one month in advance of the event date. Payment will be made by the CORS Treasurer upon receipt of the expense report.

TSP Coordinator, Fredrik Ødegaard (fodegaard@ivey.uwo.ca)

Operations Research and Management Consultant Vancouver Island, BC

This interesting new full-time 2-year term position is an excellent opportunity to be part of an innovative quality, safety and improvement initiative while exploring the very desirable Vancouver Island lifestyle.

Island Health (Vancouver Island Health Authority) is one of British Columbia's 5 regional health authorities with over 19,500 employees, 1,900 physician partners, and 6,000+ volunteers. We offer an exceptional employer-paid benefits package including dental and prescription coverage, group life, long term disability and extensive extended health plan.

Project Overview

The Specialist Services Committee (SSC) was formed in 2006 under the Physician Master Agreement to help the Doctors of BC, BC government and health authorities collaborate on the delivery of specialist services and support improvement of the specialist care system in BC. Through an innovative partnership formed in 2015 with the Specialist Services Committee (SSC), Island Health is undertaking an enhanced approach to quality improvement, which includes providing physicians an opportunity to lead quality initiatives. While administrative reporting will be to the Director, Quality, Safety & Improvement, this position will have matrix reporting relationship to the SSC Regional QI Steering Committee and the SSC Initiatives Lead.

Role Summary

You will be responsible for facilitating process improvement initiatives and strategies across Island Health associated with the development, management, and evaluation of SSC Regional Quality Improvement activity within Island Health financed by the SSC. SSC strategies may include but are not limited to, engaging physicians to discuss, prioritize and act on system improvement opportunities; enabling health system improvement by supporting physicians in quality improvement initiatives; and supporting physicians to deliver quality care by building physician capacity in leadership and QI skills. The position has regional responsibilities requiring travel.

Desired Qualifications & Experience

Along with your Masters' Degree in Operations Research and Management, you have a minimum of 5 years' experience in a similar project management position with a proven track record with process re-design and workflow analysis resulting in measurable process improvements. You have a broad knowledge of alternate business process engineering principles, practices and methods affecting an organization, program planning, evaluation and monitoring, principles and application of financial management, and research methods and techniques that include basic statistical analysis and process control techniques. Knowledge of theory and application of health quality improvement principles and frameworks is an asset.

Your background shows your exceptional team leading and facilitation skills to achieve goals and objectives. You have demonstrated strong analytical problem solving skills to develop progressive, creative and innovative enterprise wide solutions. You are able to present and prepare concise analyses, reports and recommendations to multidisciplinary audiences, and consult individuals internal to the organization.

Self-directed and motivated, you have shown ownership over assigned responsibilities. You are adaptable and flexible enabling you to meet changing priorities and resource constraints. You have proven your time management skills and your ability to schedule time to meet deadlines.

Learn more and apply: https://viha.hua.hrsmart.com/ats/js_job_details.php?reqid=41086

Questions? Contact: Deborah Bartley, Leader, SSC at Deborah.bartley@viha.ca or 250.755.7691 Extension 53006.

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MEETINGS AND CONFERENCES

CORS Business Meetings

June 1, 2016	CORS Council Meeting, Banff, AB
August 26, 2016	CORS Council Meeting, Teleconference
November 25, 2016	CORS Council Meeting, Teleconference
January 27, 2017	CORS Council Meeting, Toronto, ON
March 31, 2017	CORS Council Meeting, Teleconference
April 28, 2017	CORS Financial Planning Committee Meeting
June 30, 2017	CORS Council Meeting, Teleconference
July 16, 2017	CORS Council Meeting, Quebec City, QC
July 17, 2017	CORS Council Meeting, Quebec City, QC
July 18, 2017	CORS Annual General Meeting, Quebec City, QC

CORS Annual Conferences

July 17–21, 2017	CORS/IFORS Conference, Quebec City, QC
2018	CORS Annual Conference, Halifax, NS

WWW Conference Listings

CORS Conference Page: <http://www.cors.ca/?q=content/cors-annual-conferences>

INFORMS Conference Home Page: <http://www.informs.org/Conf/Conf.html>

IFORS Conferences: <http://ifors.org/web/#>

Netlib Conferences Database: <ftp://ftp.cc.ac.cn/netlib/confdb/Conferences.html>

SIAM Conference Home Page: <http://www.siam.org/meetings/calendar.php>

POMS Conference Page: <http://www.poms.org/conferences/>

THE NEXT ISSUE

The next issue of the Bulletin is scheduled to appear in November. Along with the regular features and news from the local sections, it will include more information about the next CORS conference. Contributions to this issue, especially news on the activities of local sections or CORS members, should be submitted by **October 21, 2016** to:

Andrea Friars
Editor, CORS Bulletin
11 Sawgrass Drive
Oakfield, NS B2T 0G1
Phone: 902-895-8430 ext. 3236
Email: AndreaFriars@gmail.com

The preferred method of submission is by an MS-Word attachment to an email.

CORS BULLETIN TRANSLATION POLICY

Items that are CORS business will be translated into English and French. All other items will be published in the language they are submitted in.

CORS BULLETIN ADVERTISING POLICY

Ads cost \$120 per page, proportional for fractional pages. Logos and prepared layouts can be accommodated. This fee also includes distribution of the advertisement on the CORS ListServ. Direct inquiries to the Editor.

CORS LISTSERV

As a benefit of membership, members may use the CORS ListServ to transmit messages, announcements, and job postings to the entire membership or to a targeted subgroup such as a local section. For example, you can send

- messages regarding the activities and business of the society;
- announcements about conferences, conference sessions, special journal issues, seminars or other activities provided that these are related to operational research in its broadest sense;
- job postings of general interest to CORS members.

The ListServ is not used for commercial purposes, and all messages are vetted before they are sent out. To submit items to the ListServ, email CORS Membership Services at membershipservices@cors.ca

For non-members, a fee of \$60 is charged for the distribution of job postings and other announcements or messages of interest to the CORS membership.



Canadian Operational Research Society
Société canadienne de recherche opérationnelle

The **Canadian Operational Research Society** was founded in 1958. Its goal is to advance the theory and practice of OR and to stimulate and promote contacts between people interested in the subject.

Publications: A quarterly scientific journal called *INFOR* and a news *Bulletin*.

Meetings: An annual national conference with an award ceremony, occasionally organized jointly with an international society (IFORS, INFORMS), and numerous local events organized by local sections.

Local Sections: CORS has twelve local sections located throughout Canada and three student sections.

Awards and Prizes: CORS presents the following annual awards and prizes at its annual conference:

Award of Merit for significant contributions of a present or past member of CORS to the profession of OR.

Harold Larnder Award to an individual who has achieved international distinction in OR.

Omond Solandt Award to an organization, private or governmental, that is deemed to have made an outstanding contribution to OR in Canada.

Practice Prize for the challenging application of the OR approach to the solution of applied problems.

Service Award for outstanding contributions of time and service to the society.

Student Paper Competition to recognize the contribution of a paper either directly to the field of OR through the development of methodology or to another field through the application of OR.

Graduate Student Funding: CORS encourages attendance of graduate students at its annual conference by providing partial funding. Visit CORS website for details.

CORS Diploma: This diploma is awarded to students graduating from a university curriculum comprising several OR courses. Criteria may be found on the CORS website.

Membership Directory: An online directory of CORS members is available as a membership benefit.

To join CORS: Go to the CORS website and join online by credit card using the form found under membership or complete the PDF application form found on the CORS website and mail it with payment to the address below.

Fees: Member \$110; Retired Member \$55; Student Member (including post-doctoral fellows) \$45

Website: <http://www.cors.ca>

LinkedIn : <https://www.linkedin.com/company/canadian-operational-research-society>

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