

The Government of Canada and the New Brunswick Innovation Fund have contributed \$5.45 million to the University of New Brunswick's [Marine Additive Manufacturing Centre of Excellence](#), which will help revolutionize the marine industry in Canada.

The project will support the expertise and infrastructure required to build a strong foundation for the advancement of additive manufacturing in Atlantic Canada. This includes attracting top researchers, graduate students, and research assistants to the region and focusing their efforts on research, development, commercialization and technology transfer. The beginning of this effort involves MAMCE purchasing a next-generation 3D printer.

The full story can be viewed at [MAMCE receives millions in government support](#).



L-R: Wayne Long, Mohsen Mohammadi, David Saucy, and President Campbell



Dr. Alli Murugesan

The University of New Brunswick's Dr. Alli Murugesan has been awarded the 2018 Mitacs Global Impact Entrepreneur Award for her outstanding research and innovation in cancer research.

The award recognizes Dr. Murugesan for her breakthrough discoveries in cancer research and entrepreneurship. She has been developing a treatment that targets and kills cancer cells that have become resistant to chemotherapy.

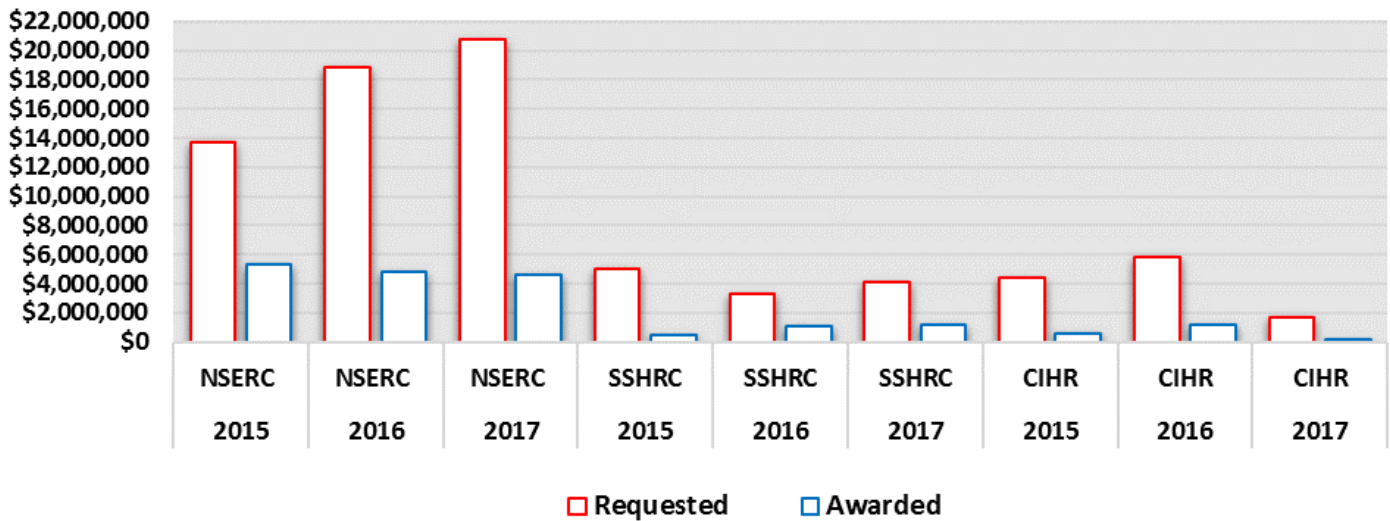
Dr. Murugesan is an academia-nurtured entrepreneur with a PhD degree in biotechnology and two postdoctoral fellowships in neuroscience and oncology. She is a senior scientist on UNB's Saint John campus. Her full story can be viewed at [UNB scientist wins 2018 Mitacs Entrepreneur Award](#).

This edition of [Research Matters](#) highlights Tri-Council results and innovation activities from Fiscal Year 2017–18 as found in the table of contents below.

<b>Table of Contents:</b>	Tri-Council Results	2
	Canada Research Chairs	3
	Intellectual Property Management, Technology and Knowledge Transfer	4
	Industrial Research Assistantship Program	5
	Mitacs Academic Partner Report for UNB	6
	Mitacs Accelerate Statistics	7
	NB Innovation Foundation—UNB RAI Report	8
	NB Health Research Foundation—Financial Contributions	9
	Research Outputs	10

Tri-Council – 2017 Results

Tri-Council Results



Canadian Institutes of Health Research (CIHR)  
 Natural Sciences and Engineering Research Council of Canada (NSERC)  
 Social Sciences and Humanities Research Council of Canada (SSHRC)

For more information on these funding programs please visit [Tri-Council funding](#).

# Institutional Funding

## Canada Research Chairs

UNB received \$1.3 million for our eight active Canada Research Chairs (CRCs) in 2017-18. Although, UNB did not submit any CRC nominations or renewals during the year, we did experience several changes. In preparation for his upcoming sabbatical leave and retirement, Dr. Douglas Willms (Education) chose not to renew his Tier 1 Chair in Literacy & Human Development. Drs. Ying Zheng (Chemical Engineering), Karen Kidd (Biological Sciences), and Paul Peters (Sociology/Economics) left the university, thus ending their Chairs in Chemical Process and Catalysis, Chemical Contamination of Food Webs, and Spatial and Social Inequalities in Health and Health Service Delivery.

In November 2017, the Canada Research Chairs Program implemented a policy change that eliminated the open-ended nature of Tier 1 Chairs. This senior tier will now be limited to two seven-year terms. Previously, UNB had submitted two successful third-term renewals for Tier 1 Chairholders; as a result, the CRC Program has permitted Drs. Bruce Balcom and Yonghao Ni to complete their third terms.

## UNB's CRC contingent as of April 30, 2018:

	Name	Department/Faculty	CRC in...	Tier
1	Bruce Balcom	Physics	Materials Science Magnetic Resonance Imaging	1
2	José Domene	Education	School to Work Transition	2
3	Ali Ghorbani	Computer Science	Cybersecurity	1
4	Elizabeth Mancke	History	Atlantic Canada Studies	1
5	Yonghao Ni	Chemical Engineering	Pulp and Paper Science and Engineering	1
6	Scott Pavey	Biology	Aquatic Molecular Ecology and Ecological Genomics	2
7	John Spray	Earth Sciences	Planetary Materials	1
8	Yun Zhang	Geodesy & Geomatics Engineering	Advanced Geomatics Image Processing	2

## Intellectual Property Management, Technology and Knowledge Transfer

The Industry-Government Services (IGS) division of the Office of Research Services connects business to researchers and guides research to market. In the fiscal year 2018, IGS:

- Secured 10 new Springboard Innovation Mobilization funding projects (5 Industry Engagement, 2 Patent & Legal, 2 Proof of Concept, and 1 Market Study) to assist in moving technologies through the commercialization process, and to engage industry.
- Managed 8 new invention disclosures.
- Entered into 14 technology transfer agreements and options with industry.
- Filed 11 patent applications.
- Had 7 previous patent applications issued as registered patents.
- Received licensing revenues of \$193,384
- Hosted or assisted with, 7 industry workshops, and hosted another 10 internal workshops.

Technology and Knowledge Transfer (Last 5 Fiscal Years)					
Fiscal Year (May 1 – April 30)	2013-14	2014-15	2015-16	2016-17	2017-18
Disclosures	15	14	20	21	8
Patent Applications Filed	20	13	7	12	11
Patents Issued	6	8	16	10	7
License Agreements	5	12	12	14	14
License Revenue	\$107,625	\$106,713	\$91,410	\$94,257	\$193,384
Spin-offs Created	1	1	0	0	0
<i>Note: Spin-offs represent companies created through licensing of IP assigned to UNB by inventors, not all UNB-related start-up companies. IGS assisted a number of UNB-related spin-offs through the provision of advice and template agreements during the period.</i>					

Since the establishment of the Intellectual Property Management Program within the Office of Research Services in late 1999, UNB has been active in transferring technologies into the marketplace, with a strong focus on industry collaboration. In the period from May 1, 2000 to April 30, 2018, UNB has:

- Managed 305 invention disclosures;
- Filed patent applications for 104 separate technologies (many of these technologies involved filing one technology/patent in multiple jurisdictions);
- Had 93 patents issued;
- Filed 19 Section 9 trade-marks for the University (note: other departments at UNB also file section 9 marks);
- Completed 165 technology transfer deals;
- Secured licensing revenues and patent reimbursements of over \$4.5 million;
- Assisted in the creation of 20 UNB spin-off companies.

## Industrial Research Assistantship Program (National Research Council)

Since 2006, the National Research Council (NRC), through UNB’s Office of Research Services (ORS), has provided short-term scientific or technical assistance to Canadian, for-profit, small-to-medium size enterprises (SMEs) under the NRC-IRAP Contribution to Organization (CtO) Program.

The objective of the CtO Program is to support the innovative needs of Canadian SMEs through short-term technical assistance from faculty, staff, and students at the University of New Brunswick. The CtO Program helps build and integrate innovation capacity in Canada & encourages investment in R&D activities that have clear commercialization goals.

UNB works with individual companies to provide applied research services on a project within, but not limited to, the following areas:

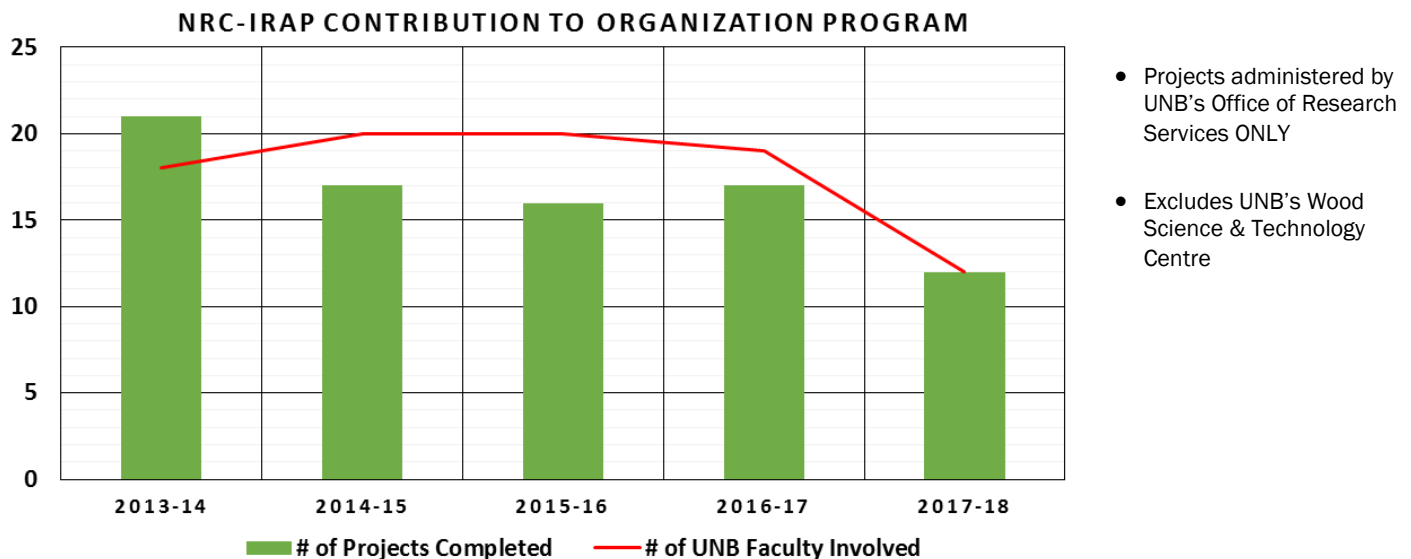
- Scientific or technical business advice;
- New product/process development or improvement;
- On-site troubleshooting of issues (in manufacturing, etc.);
- Prototype/proof of concept evaluation;
- Reliability/quality improvement;
- Product testing;
- Technology and/or literature searches/reviews;
- Technical training of company staff;
- Seminars/conferences on specific technical issues of interest to industry;
- Ad-hoc advice.

Each project is assessed by NRC-IRAP for its plan and challenges, the researcher’s capacity to achieve success, and the potential impact the project will have on the business and Canada. There must be a viable business opportunity and the company must plan to commercialize the results.

For the 2017-2018 fiscal year, UNB administered 24 NRC-IRAP CtO projects involving 18 different UNB faculty, staff or students. The projects were worth a total of \$102,719.

- UNB’s Office of Research Services administered 12 consultation projects, worth \$45,502.90.
- UNB’s Wood Science & Technology Centre administered 12 consultation projects, worth \$57,216.10.

Since its inception in 2006, a total of 213 projects have been completed under this program through the Office of Research Services.





## Mitacs Academic Partner Report – F2017-18 Results

As a [Mitacs](#) full partner, the University of New Brunswick accessed the following programs in 2017-18:

- **Accelerate:** 142 Accelerate internship units submitted, valued at **\$1,926,667**;
- **Elevate:** 1 Fellowship awarded, valued at **\$135,000** over two years;
- **Globalink Research Internship (GRI):** 7 international interns hosted at University of New Brunswick in the Summer of 2017, valued at **\$84,000**;
- **Globalink Graduate Fellowships:** 1 Fellowship awarded, valued at **\$15,000**;
- **Globalink Research Awards:** No project awarded;
- **Accelerate International:** No projects awarded;
- **Training:** 49 graduate students and postdoctoral fellows attended professional skills training workshops, valued at **\$19,600**.

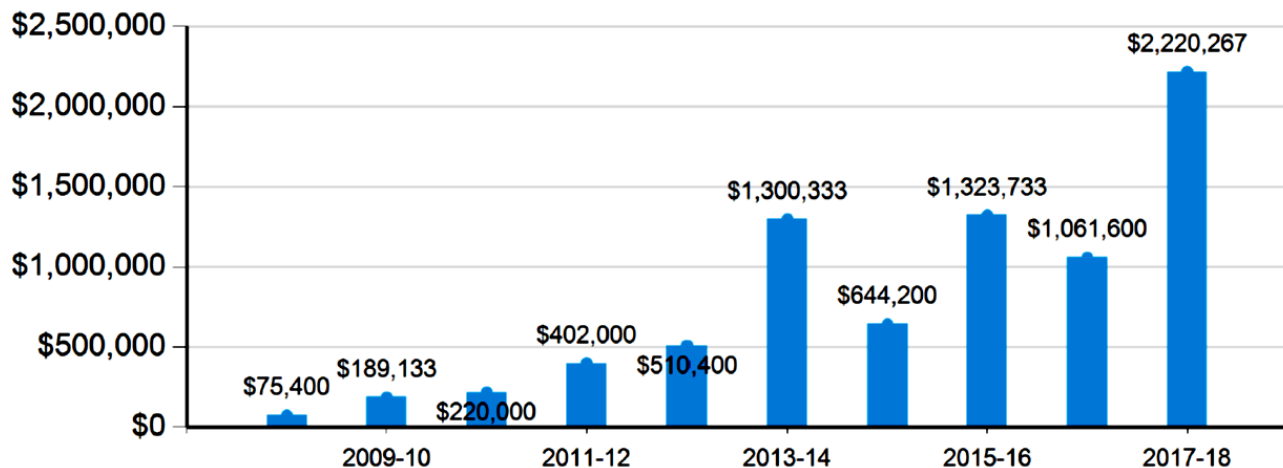
The total value to the University of New Brunswick in 2017-18 was **\$2,220,267**.

During the 2017-18 fiscal year \$588,533 in cash was disbursed to the University of New Brunswick. This total includes program funding that had been awarded (but not disbursed) in previous fiscal years, as well as funding installments that are disbursed over multiple years.

The **total estimated value** to the University of New Brunswick in the last ten years was **\$7,947,066** (i.e. Training, GRI). A total of **\$3,680,826** in cash has been sent to the University of New Brunswick over the past ten years.

### Mitacs Programs: 2008–2018

**Total Value to University of New Brunswick**

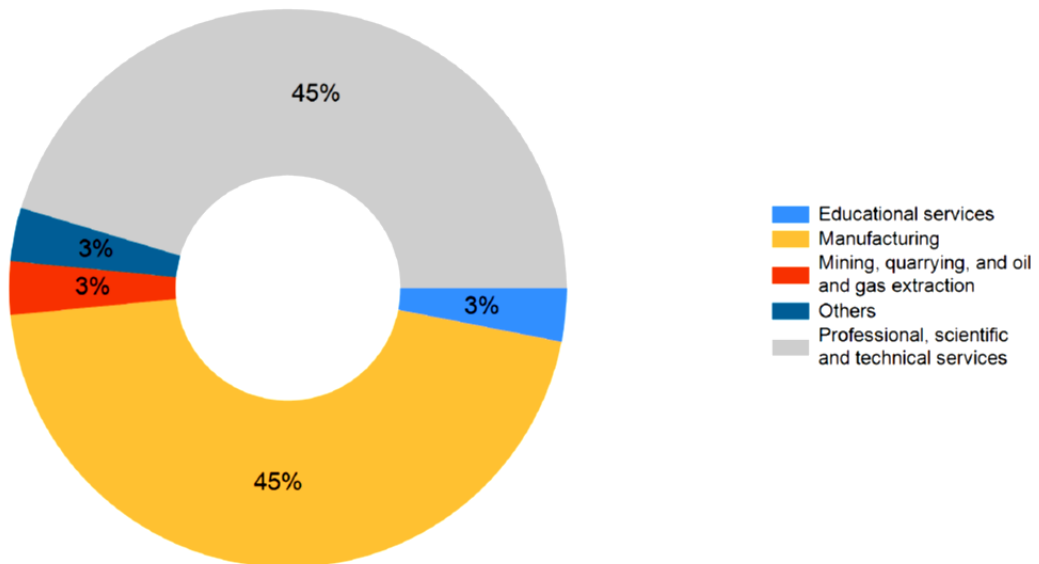




## Mitacs Accelerate Statistics – 2017-2018

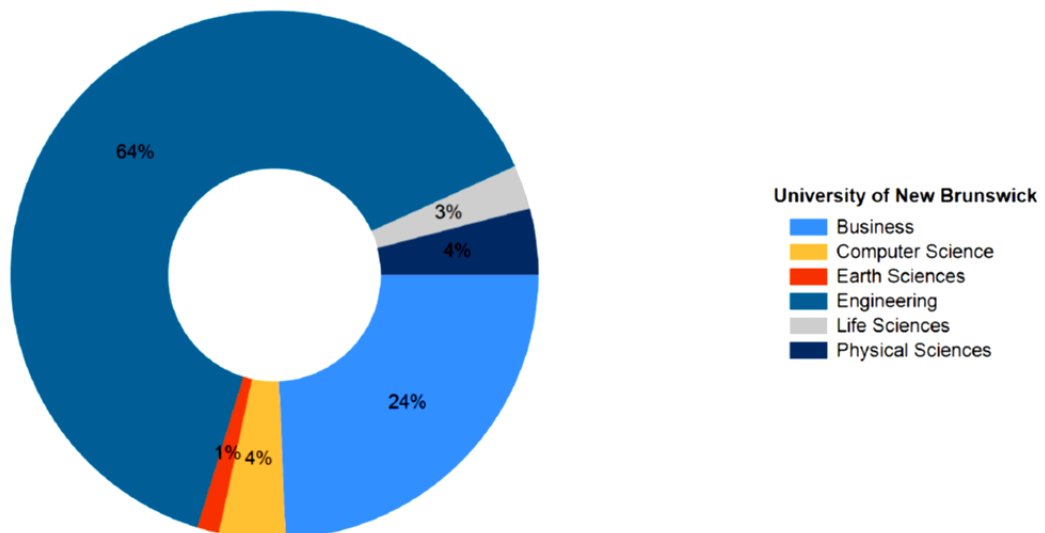
Mitacs tracks a number of details relating to Accelerate internships. The following charts summarize data pertaining to the University of New Brunswick’s past Accelerate projects submitted in 2017–2018.

Industry Sector\* - University of New Brunswick



\* Industry sector as defined by NAICS code

Academic Disciplines - University of New Brunswick





## New Brunswick Innovation Foundation (NBIF) – 2018 UNB RAI Report

The Research Assistantships Initiative (RAI) is a joint initiative between [NBIF](#) and the New Brunswick Department of Post-Secondary Education, Training and Labor (PETL). It provides applied researchers some of the funding they need to hire undergraduate and graduate student research assistants. Researchers may apply for more than one assistant.

Researchers can be funded for more than one graduate research assistantship in any specific round. Graduate Research Assistantships are awarded at \$10,000 each. Undergraduate Assistantships are \$5,000 each. RAI contributions can be used to top up other funding sources and can be allocated to one or more students. Funding is advanced to the college or university first, and then disbursed to the student(s) in the form of a salary, fellowship, or stipend. Ideally, all funds are to be used within one year, however, any unused funding is automatically extended for one additional year with NBIF approval. RAI funding is not transferable to other colleges or universities.

- ◆ Total applicants: 47 (\$1,385,000) / total students applied 158
- ◆ Total funded: 29 (\$530,000) / 59 students funded
- ◆ Total undergraduate students funded: 12
- ◆ Total graduate level students funded: 47

Institution	Traditional RAI	Number of Undergrads	Number of Grads	Total \$
UNB	\$530,000	12	47	\$530,000





## NB Health Research Foundation (NBHRF) - Financial Contributions to UNB

The [New Brunswick Health Research Foundation](#) (NBHRF) is the primary funder for health research in the province of New Brunswick. The table below shows the funding that NBHRF provided to UNB as a post-secondary institution in the Province of New Brunswick during fiscal years 2016-2017 and 2017-2018.

For specific information regarding each program, visit [funding opportunities](#).

Programs	CA\$ 2016-17	CA\$ 2017-18	Number of Investigators	Number of Undergrads	Number of Graduates
<b>Grants</b>					
Establishment	94,000	49,000	1	na	na
Bridge	95,400	70,000	2	na	na
Strategic Initiative	343,057	180,900	3	na	na
Workshop	183,897	4,275	1	na	na
Travel Awards	na	2,917	1	na	2
Wellness fund	na	160,500	2	na	na
CIHR-SPOR-MSSU	1,070,123	330,300	1	na	na
CIHR-SPOR-PIHCI	200,000	115,625	1	na	na
CIHR-SPOR-NCD-CHILD	100,000	50,000	1	na	na
CIHR-eHIPP	401,435	31,250	1	na	na
AGEWELL Innovation Hub	na	105,750	1	na	1
CABHI Grants	na	149,934	3	na	na
Diabetes Canada Grant	na	20,000	1	na	na
PCC Grant	na	30,404	1	na	na
<b>Salary Awards</b>					
Summer Studentships	62,624	65,920	na	11	na
MSc Studentships	17,000	17,000	na	0	1
PhD Studentships	26,500	24,500	na	0	2
Postdoctoral Fellowships	0	0	na	0	0
MSSU awards	71,500	142,000	na	1	4
Chairs	700,000	428,500	4	na	na
AGEWELL Awards	na	28,750	na	na	1
CFN Awards	na	20,684	na	2	1
BHCRI Awards	na	13,685	na	na	2
<b>Total</b>	<b>3,365,536</b>	<b>2,041,894</b>	<b>24</b>	<b>14</b>	<b>14</b>

Overall, NBHRF and partners funded \$3,365,536 in 2016-2017 and **\$2,041,894 in 2017-18** to UNB health researchers and their undergraduate and graduate students. Those funds also supported projects and created jobs such as, but not limited to, technicians, research assistants and/or research associates.

The value of these grants and awards includes the matching and leveraging portion of funds obtained by other parties such as private partners, federal granting bodies, national agencies, and health charities.

## Research Outputs

The Research Output Indicators measures each institution’s success in publishing in the peer reviewed academic literature. We are reporting comparative rankings in the total number of publications produced by UNB based on Re\$earch Infosource Inc’s statistics. The ranking position is based on all universities assessed, however, we are only reporting the rankings for our selected peer group of comprehensive universities. Re\$earch Infosource Inc’s statistics are based on publication data obtained from Observatoire des sciences des technologies’ (OST) Canadian bibliometric which contains data from SCI-Expanded, SSCI, and AHCI databases of Thompson Reuters; and faculty data obtained from Statistics Canada and the Re\$earch Infosource University R&D Database.

1. “Total Number of Publications” includes articles, notes, and reviews published by researchers affiliated with Canadian universities and research hospitals in 12,232 peer-reviewed scientific international journals covering natural sciences, health sciences, and social sciences and humanities.
2. “Publication Intensity” is defined as the total number of publications per full-time faculty (full, associate, and assistant faculty positions are only included). It is estimated that there is, on average, a minimum 2-year publication lag time.
3. “Publication Impact” points are based on the Average Relative Impact Factor (ARIF) which was developed and provided by OST. It is based on a measure of perceived impact of research through a calculation of citations received by journals. The impact factor does not measure the specific number of citations per article (i.e. direct impact), but rather, is a measure of the probability of being cited (i.e. perceived impact). OST developed the ARIF to compare the impact factor from several specialities as an article’s probability of being cited is not the same for all fields. The ARIF does not include journals on the humanities.

Research Output Indicators											
YEAR	Waterloo	Guelph	Victoria	Simon F	Carleton	Memorial	Manitoba	UNB	Concordia	Windsor	Regina
Total Number of Publications- RANK											
2013	10	17	18	16	20	23	12	26	22	27	28
2014	10	15	18	15	20	22	12	27	23	26	29
2015	10	16	18	17	21	23	12	26	22	28	29
2016	10	16	18	17	20	23	12	26	22	27	28
2017	10	16	19	17	20	23	12	26	22	27	29
Publication Intensity - RANK											
2013	6	12	13	14	19	32	17	20	25	27	22
2014	7	12	15	14	20	29	18	24	26	25	21
2015	6	13	14	15	21	32	18	23	37	26	24
2016	5	11	14	15	19	33	17	21	23	24	20
2017	5	12	16	14	19	28	17	22	20	30	25
Publication Impact - RANK											
2013	17	20	14	6	31	25	24	43	34	39	19
2014	22	25	9	4	30	28	24	42	31	37	20
2015	19	25	12	10	30	31	23	37	35	27	33
2016	10	25	9	11	31	34	19	46	28	29	20
2017	18	21	15	9	28	19	20	42	32	29	26