



Associate Provost, Research
Annual Report to Research Board and Academic Council
2010-2011

1.0 Introduction

In this report, I provide an update on the research and scholarly environment at UOIT for the academic year 2010-2011.

The 2010-2011 academic year saw many changes at UOIT, including the opening of the GM Automotive Centre of Excellence, the completion of the Energy Research Centre, the opening of two new buildings in Downtown Oshawa, the allocation of two additional Canada Research Chairs, an overall increase to sponsored research funding, as well as many individual achievements.

UOIT continued to experience growth in total research funding and maintained its rank amongst the top 50 research-intensive universities in Canada and ranked high amongst primarily undergraduate universities.

Collectively, UOIT faculty members had an outstanding year. A few highlights include prestigious grants and awards:

Ministry of Research and Innovation: Early Researcher Awards:

- Dr. Jeanette Hughes, Education, “Fostering globally and culturally sensitive adolescents: Social action through digital literacy”
- Dr. Shari Forbes, Science, “An interdisciplinary investigation of decomposition chemistry”

Ministry of Research and Innovation Ontario Research Fund -Research Excellence:

- Dr. Greg Naterer, Engineering and Applied Science, “Clean hydrogen production with water splitting technologies”
- Dr. Vijay Sood, Engineering and Applied Science, “Future Urban Electric System”

Canada Foundation for Innovation

- Dr. Remon Pop-Iliev, Engineering and Applied Science, “Centre for characterization of polymers and cellular polymeric composites (CCPCPC)”

- Dr. Bernadette Murphy, Health Science, “The effect of altering afferent input from the spine and limbs on central sensiomotor integration”
- Drs. Khalil El-Khatib, Shahram Heydari, Miguel Vargas Martin, Business and IT, “Establishing the UOIT security testing facility”

UOIT 2010 Research Excellence Awards

- Early Stage Researcher Award: Dr. Carolyn McGregor, Business and IT/Health Science
- Senior Researcher Award, Dr. Marc Rosen, Engineering and Applied Science

The summer undergraduate research day (Student Research Showcase) was a great success. Fifty students/student teams presented the outcomes of their research work with UOIT faculty members. The following students/student teams were presented with the best poster awards:

- Amer Dawamneh, **Faculty of Business and IT** (Faculty Supervisor: Dr. Suhaib Riaz), *Antecedents and Consequences of the Global Financial Crisis*
- Sierra McKenzie, Megan Johnson, Johnathan Wallace, Ferenc Cabarle, **Faculty of Social Science and Humanities** (Faculty Supervisor: Dr. Alyson King), *Voices of UOIT: Behind the Scenes*
- Patrick Haines, Amjad Farah, Jeffery Samuel, **Faculty of Energy Systems and Nuclear Science** (Faculty Supervisor: Dr. Glenn Harvel), *Sensitivity Analysis of FLUENT CFD code*
- Mats Van Kleef, **Faculty of Engineering and Applied Science** (Supervisors: Dr. Forest Wang and Edward Secnik), *Crystallization Kinetic Study of Cupric Chloride Recovery from Electrolysis Effluent Solution*
- Emily Bremer, Jacqueline Mangal, **Faculty of Health Sciences** (Faculty Supervisor: Dr. Meghann Lloyd), *A comparison of the physical activity behaviour of a 10 year old boy with Down syndrome and a 10 year old boy with Typical Development*
- Sierra McKenzie, Megan Johnson, Johnathan Wallace, Ferenc Cabarle, **Faculty of Education** (Faculty Supervisor: Dr. Shirley Van Nuland), *The Voices of UOIT: Community Responses to Oshawa University*
- Adam Domurad, **Faculty of Science** (Faculty Supervisor: Dr. Faisal Qureshi), *Pedestrian Tracking using a Visual Analysis Pipeline*

2.0 Policy Development

The UOIT framework of policies and procedures is under review. The Research Board reviewed and recommended modifications to the following policies:

Policy and/or Procedures	Responsibility/Approval
Research Board (Terms of Reference - composition)	Approved by Academic Council
Royalty Revenues Distribution (revision)	Consultation with Provost Council and President's Policy Committee
Policy on Indirect Cost Allocation	Working Committee
Purchasing Policy and Procedures	Working Committee
Post-Doctoral Fellows	Human Resources (working committee)
Biosafety Manual	Biosafety Committee
Radiation Safety Manual	Radiation Safety Committee

In the 2011-2012 academic year, a number of specific policies and procedures will be submitted to the Research Board for review, including but not limited to:

- Human Research Ethics
- Integrity in Research and Scholarship
- University related research policies and procedures (section 7 of UOIT Administrative Code)
- Establishment of spin-out companies
- Conflicts of Interest
- Intellectual Property
- Establishment of Research Entities (policy and procedures)
- Canada Research Chair renewals, terminations and reductions.

3.0 Research Entities

The Research Board received the reports of the formally established research entities: Centre for Evaluation & Survey Research (CESR), University-Community Link Unit (CLU), and the Health Education Technology Research Unit (HETRU). Each entity submitted a report on their activities for 2010-2011 and proposed activities for 2011-12.

The University also has nine Faculty-based and interdisciplinary research groups as well as informal research labs. These groups are:

- Forensic Psychology Research Group
- Marketing Research Group
- Finance Research Group

- Advanced Materials Research Group
- DaMSeL Research Group
- METIS Research Group
- Health Informatics Research Group
- Antimicrobial Resistance Research Group
- Digital Life Research Group.

Five of the nine research groups are reported on below. Two of these groups, AARG and Digital Life Research group have not reported as they have been functioning for less than 12 months.

Forensic Psychology Research Group

The FPRG consists of four forensic psychology faculty members and their students. The group recently moved into new facilities on the downtown location. Amongst the four faculty, they hold six research awards, including three SSHRC grants, have three books under contract or in press, six book chapters published, five articles published in refereed journals, and fifteen conference presentations.

Marketing Research Group (M@RG)

M@RG consists of seven faculty members in FBIT. In the past year the group organized internal research seminars showcasing research of the Marketing faculty members, invited external experts to speak at UOIT, developed a website (<http://businessandit.uoit.ca/marg>), applied for external grants developed a Consumer Study Lab and engaged undergraduate students in research. The group's members have published 11 journal articles, 31 conference presentations and 13 conference proceedings, 4 abstracts and 1 paper award (Emerald Literati Network), and attracted ~\$230,000 in research funding. M@RG contributes to the #9 of 19 ranking (tied with Calgary and McGill) in the U Texas, Dallas, ranking of departments of business schools in Canada based on research contributions (2007-2010).

Finance Research Group

The Finance Research Group (F@RG) (http://businessandit.uoit.ca/finance_rg/) was formed in 2008 with the objectives of cultivating a culture of research and partnership amongst the financial faculty, augment student learning through research, and enhance the research reputation of UOIT and FBIT. Since its establishment, members have published more than 30 peer reviewed journal articles and eight books/book chapters as well as 21 refereed research papers at finance/business conferences. The group has engaged more than 15 undergraduate students in faculty-led projects and is engaged in journal reviews. Dr. Smimou is a member of the editorial board of two journals: *International Journal of Applied Management Studies* and *Romanian Economic Journal*.

Advanced Materials Research Group

Formed in December 2008, the AMRG brings together 11 faculty members from the Faculties of Science, engineering and Applied Science, and Energy Systems and Nuclear Science. The group led the development of a Ph.D. program in Materials Science, acquired significant research equipment and prepared a report on infrastructure required for materials characterization while reducing duplication.

Distributed and Mobile Systems Laboratory (DaMSel) Group

DaMSel, formed in 2009, consists of five faculty members from FEAS and FBIT and has a focus on distributed and mobile applications (<http://damsel.engineering.uoit.ca>). The purpose of the group is to perform research that leverages distributed and mobile software systems. The group members maintain active research programs, supervised 5 students and 5 capstone projects.

4.0 Research Integrity

The Office of the Associate Provost Research reviewed one allegation of misconduct in accordance with the UOIT Policy on Integrity in Research and Scholarship.

5.0 Research Metrics

UOIT faculty members had another outstanding year as measured by sponsored research grants, contracts and agreements. The sponsored research funding (awarded) increased by 21.8%, from \$7.8 million in FY 2009-2010 to \$9.5 million in 2010-2011. The average \$/faculty member and average number of grants/faculty member increased by 13.8% and 14.8% respectively or \$54,118/faculty and 1.42/faculty in 2009-2010 to \$61,597/faculty and 1.73/faculty respectively.

Sponsored funding and research grants per faculty member are two measures of research intensity currently used to evaluate research success at UOIT. The Research Board and the Office of the Associate Provost Research (OAPR) felt these measures are limited in scope. The OAPR will identify additional metrics to provide a more robust measure of research capacity and intensity at UOIT. Additional metrics could include international citation indexes, impact on social and economic development in the Durham Region and Ontario, and impact on public policy formation, amongst others. Assessing research outputs, outcomes and impact rather than inputs (research funding) will provide UOIT with a more robust story of the value of our research enterprise to our students (education) and to our communities (health, economy, education, and community cohesion).

6.0 Knowledge Mobilization

Knowledge mobilization takes many forms.

The most immediate is the contributions of research and scholarship through teaching and graduate and undergraduate research supervision. These contributions, however, are the most difficult to measure yet are probably the most long term and influential.

The University is particularly interested in promoting collaborations between our faculty members and students and regional business enterprises and community-based organizations. Such collaborations stimulate innovation within and organizations and provide pathways to unlock the potential of our faculty members' and students' creativity, research expertise and entrepreneurial capacity.

Through the Office of Technology Transfer and Commercialization (OTTC), UOIT supports faculty member-led engagement with industry and community partners. Amongst the key activities supported by OTTC in 2010-11, were:

1. Southern Ontario Development Agency (FedDev) Applied Research and Commercialization (ARC) initiative
FedDev awarded UOIT \$739,000 to address the gap between research and commercialization by encouraging collaboration with SMEs. The funds support 15 projects, to a maximum of \$50,000 from FedDev. These projects will solve an immediate problem of and have a positive impact on an SME's business.
2. Ontario Partnership for Innovation and Commercialization (OPIC)
The administrative oversight of OPIC was transferred to UOIT from Ryerson in October 2010. OPIC is a virtual network of technology transfer managers and professionals located at nine universities (Algoma, Brock, Lakehead, Laurentian, Nipissing, OCADU, Ryerson, Trent, UOIT). OPIC's objectives include enhancing knowledge and technology transfer capacity by sharing expertise, educational resources, and partnering with clients within our institutions and in our surrounding communities. OPIC manages a proof-of-principle (POP) fund that assists the development of new technologies to the point that they are commercializable or will attract additional external sponsorship.
3. SmartGrid
Reflecting UOIT's expertise and location in the Durham region, the OAPR and OTTC have identified SMARTGRID as a priority initiative for 2011-2012. Working closely with the Region of Durham and local industry, including Siemens, a multi-disciplinary, collaborative research effort has been identified as a way of coordinating the efforts of the nearly 25 faculty members whose research is connected to the Smart Grid initiative. It is anticipated that this group of researchers will form one or more research centres.

4. Metrics

- 39 NDAs executed
- 22 research participant agreements
- 6 MTAs or user agreements
- 5 MOUs
- 29 collaborative research contracts, value of \$1,431,816
- 5 multi-participant funding applications
- Filed 11 patents
- Filed first UOIT trademark application
- Averaged 9 company meetings per month
- Averaged 10 faculty visits per month

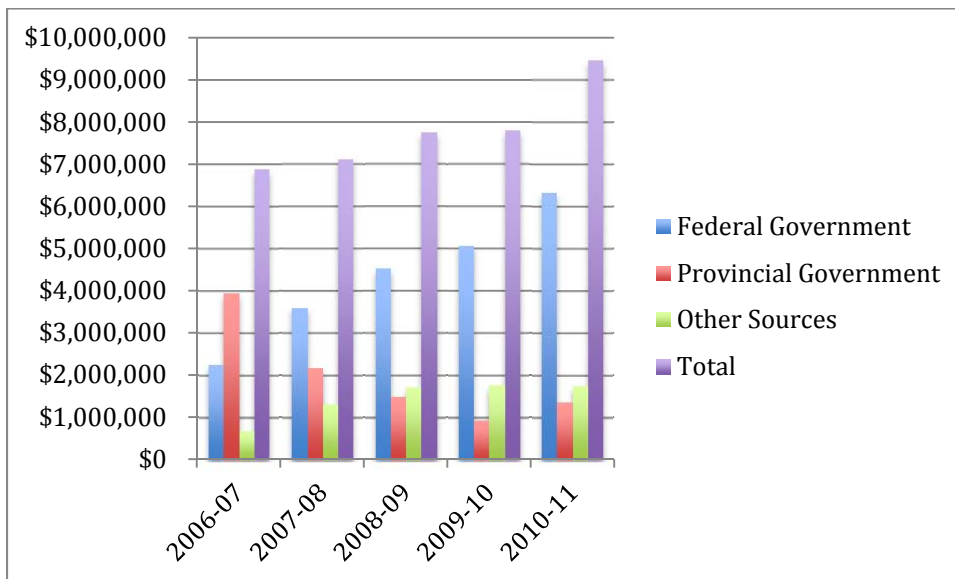
7.0 Grants and Contracts

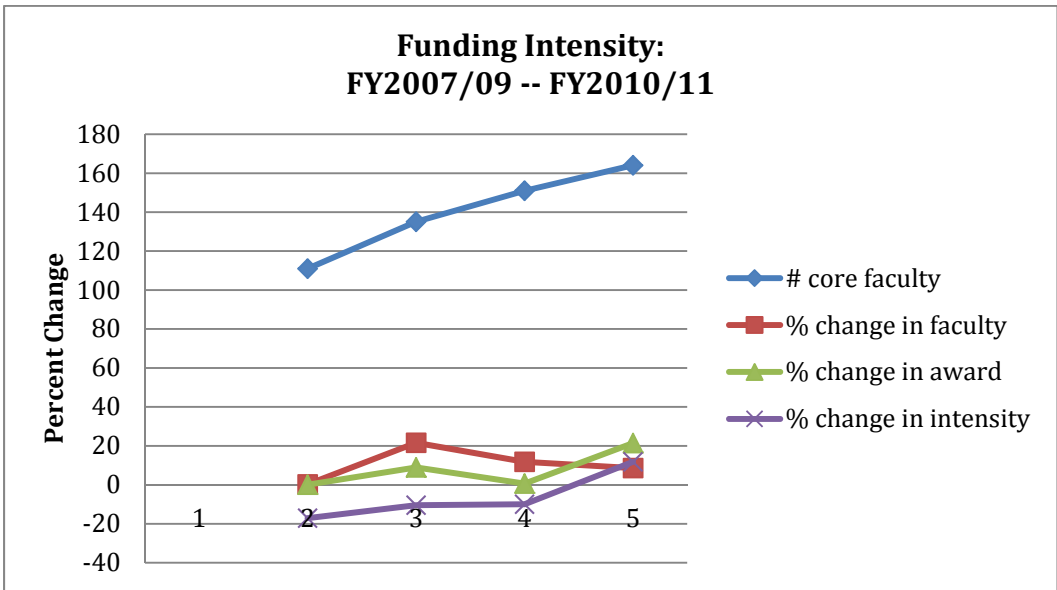
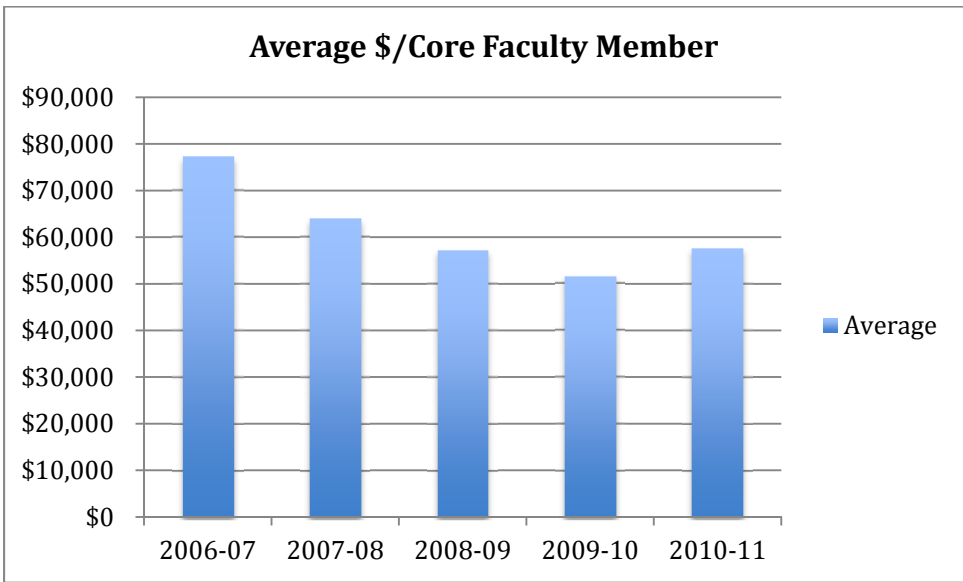
UOIT's research faculty continue to experience success in research grants applications nationally and provincially and attract a large number of research contracts with regional, provincial, national and international industry and community partners.

In the November 2010 NSERC applications (funding April 2011), UOIT faculty experienced a 100% success rate on renewal proposals (N=14). UOIT was the only university to have such a level of success.

In 2010-11, our sponsored research funding increased from \$7.8 million to \$9.5 million. The growth in sponsored research funding is significant and represents the high quality and competitiveness of our faculty members' research programs and innovative ideas.

Sponsored Research Funding 2006/07 -- 2010-11





8.0 Government Relations and Community Awareness

UOIT has participated in a Council of Ontario Universities (COU) led initiative to assess the public's understanding of the importance and impact of university-based research. Over the next year, the COU will be developing a marketing and promotions campaign across the province.

9.0 Strategic Research Plan (SRP)

The Office of the Associate Provost, Research and the Research Board have begun a process of consultations leading to the revision of the Strategic Research Plan. An SRP Steering Committee, comprised of representatives of each Faculty, has met twice to begin discussions on the content of the 2012-2017 SRP. The first step will be a survey of core faculty members. Focus groups will be held later in the autumn and winter to seek community advice on the content and format of the SRP.

The SRP will be presented to the Provost Council, Research Board and Academic Council for review in March 2012.

10.0 Other

UOIT is a founding member of the Durham Strategic Energy Alliance (DSEA). In the autumn of 2010, the DSEA was awarded funds to establish **Innovation Durham Northumberland (IDN)**, a Regional Innovation Centre, provides services to Durham Northumberland entrepreneurs and encourage industry-led research with the UOIT and Durham College and business development opportunities for local companies, including access to province-wide expertise such as MaRS.

UOIT has expanded its promotional collaborations with the DSEA/IDN and municipal and regional economic development authorities. Two of these collaborations highlighted the research capabilities of UOIT faculty members and students: Canada 3.0 and Ontario Centres of Excellence Discovery Days. In addition, UOIT is working closely with DSEA/IDN and Durham Region Economic Development to promote various clean energy initiatives such as the SmartGrid and Electric Vehicle plug-ins.