

Kevin G. Dunn

Hamilton, Ontario

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E: kevin.dunn@mcmaster.ca

01 February 2015

CV in **McMaster University** format



1. Name:

Kevin George DUNN

2. Business address

Department of Chemical Engineering
McMaster University
Hamilton, ON, L8S 4L7

3. Educational background

Masters degree in Chemical Engineering, McMaster University, August 2002.
Undergraduate degree in Chemical Engineering, University of Cape Town, 1999.

4. Current status at McMaster University

Assistant Professor, Department of Chemical Engineering
3 year contract from 1 July 2012 and expires 30 June 2015.
3 year contract renewed from July 2015 onwards.

Associate Chair (Undergraduate), 1 July 2013 to 30 June 2015.

5. Professional organizations

P.Eng (Ontario)

6. Employment history

Process Engineer, GlaxoSmithKline, Mississauga, full-time,
1 year contract from July 2011 to June 2012.

Sessional Instructor, McMaster University, Department of Chemical Engineering
2010 to 2012.

President, ConnectMV Inc., Hamilton. October 2008 to present.

Co-founder and Project Leader, ProSensus, Hamilton. June 2006 to Sept 2008

Research Engineer, McMaster University, Hamilton.

Full time: September 2002 to May 2006

Part time: March 2009 to March 2010

7. Scholarly and professional activities

| | |
|--|------|
| a. editorial boards | None |
| b. grant and personnel committees | None |
| c. executive positions | None |
| d. journal referee | None |
| e. external grant reviews | None |

8. Areas of interest

- Research on effective teaching methods and technologies
- Data analysis, particular experimental design and analysis
- Real-time data processing and analysis
- Latent variable methods
- Consulting with industrial companies on topics related to the above.

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9. Honours

None

10. Courses taught (last 5 years)

| | | |
|---------------|---|-------------|
| ChE 4C3/6C3 | Statistics for engineering | Winter 2010 |
| ChE 3E4 | Process model formulation and solution | Fall 2010 |
| ChE 4C3/6C3 | Statistics for engineering | Winter 2011 |
| ChE 765 | Latent variable methods for engineering | Fall 2011 |
| ChE 4C3/6C3 | Statistics for engineering | Winter 2012 |
| ChE 4M3 | Separation processes | Fall 2012 |
| ChE 4N4 | Engineering economics and problem solving | Fall 2012 |
| ChE 4C3/6C3 | Statistics for engineering | Winter 2013 |
| ChE 3K4 | Introduction to reactor design | Winter 2013 |
| ChE 4M3 | Separation processes | Fall 2013 |
| ChE 4N4 | Engineering economics and problem solving | Fall 2013 |
| ChE 4C3/6C3 | Statistics for engineering | Winter 2014 |
| ChE 3P4 | Process control | Winter 2014 |
| Coursera MOOC | Experimentation for improvement | Summer 2014 |
| ChE 4M3 | Separation processes | Fall 2014 |
| ChE 4N4 | Engineering economics and problem solving | Fall 2014 |
| ChE 4G3 | Optimization for chemical engineers | Winter 2015 |
| ChE 4C3/6C3 | Statistics for engineering | Winter 2015 |

11. Contributions to teaching practice

a. pedagogic innovation

- Automated testing and quiz system so students have frequent opportunities to review class material and self-test their knowledge. Questions are randomly generated and the quizzes are automatically graded.
- Use of completely electronic assignments, electronic grading by TA's to create a paperless workflow for assignments and project reports.
- Web-based system for anonymous comments and feedback from students to improve course delivery during the semester, rather than wait for evaluations.
- First introduced collaborative testing into the faculty in Winter 2014, with preliminary reviews indicating good success. Ongoing research as to its effectiveness is continuing with collaborators on campus, and at other universities. At least two other colleagues in chemical engineering are using this, and influenced the decisions of many more on campus to start the same.

b. leadership in delivery of educational programs

Completed Education 750, a graduate course offered by the McMaster Institute for Innovation & Excellence in Teaching & Learning (MIETL). The techniques learned in the course have improved my teaching at McMaster University.

Introduced and lead the development of McMaster's first massive open online course (MOOC) in July to August 2014. Regular comments from participants on the MOOC forums indicate that this has been one of the best MOOCs they have taken, when compared to other online courses on Coursera, edX, and Udacity.

The video material from the MOOC is being extended with OOI (Ontario Online Initiative) funding to take ChE 4C3 to an online/blended course in Winter 2015.

c. course/curriculum development

Revised course delivery to more explicitly use active learning during class time in all courses. This was based on compelling evidence from the Education 750 course. All courses I teach now try to engage the students more fully in classtime.

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d. development/evaluation of educational materials and programs

Course slides and self-authored course textbook (Process Improvement using Data) for 4C03/6C03 are used at Western University graduate course on Statistics (Dr. Hrymak) in 2011 to 2014. These course slides were also used by Tim Dietrich, to teach MATLS 3J03 Statistical Methods for Materials Engineers. This textbook was also used in the MOOC and positively received by the students.

12. Supervisorships

- a. master** None
- b. doctoral** None
- c. post-doctoral/fellowship** None
- d. clinical/professional** None
- e. supervisory committees** PhD supervisory committee: Mudassir Rashid, 2013 till present
- f. other**

| | | |
|--------------------|---|------------------|
| Zhuyuan Zhang | Assist with experimental design | Summer/Fall 2013 |
| Robin Ng | Assist with experimental design | Summer/Fall 2013 |
| Andrew Bovell | Summer project with Dr. Michael Thompson | Summer 2013 |
| Felipe Pedro Gomes | Summer project with Dr. Michael Thompson | Summer 2013 |
| Hadi Muhammad | Capstone COMP SCI 4ZP6 project: Quiz app | 2013/14 academic |
| Wenbo Liu | Capstone COMP SCI 4ZP6 project: Quiz app | 2013/14 academic |
| Justin Kan | Capstone COMP SCI 4ZP6 project: Quiz app | 2013/14 academic |
| Mustafa Rashid | Summer project with Dr. Michael Thompson | Summer 2014 |
| Trevor West | Summer project with Dr. Michael Thompson | Summer 2014 |
| Salomon Gabriel | Assist with experimental design (Mech Eng) | 2014/2015 |
| Ashley General | Capstone COMP SCI 4ZP6 project: HSR bus app | 2014/15 academic |
| Matthew Halleran | Capstone COMP SCI 4ZP6 project: HSR bus app | 2014/15 academic |
| Iheatu Wogu | Capstone COMP SCI 4ZP6 project: HSR bus app | 2014/15 academic |
| Noel Brett | Capstone COMP SCI 4ZP6 project: HSR bus app | 2014/15 academic |

13. Lifetime research funding

\$20,000 startup funding from the Engineering Dean for conferences and travel, etc.
 \$45,000 Ontario Online Initiative (OOI) funding to convert ChE 4C3 to an online course.
 \$ 5,000 Co-collaborator on Forward with Integrity grant (Deeper Learning, Increased Student Satisfaction and Metacognitive Gains Through Collaborative Testing with Immediate Feedback)

14. Lifetime publications

a. Peer reviewed

F.P.C. Gomes, A. Bovell, G.P. Balamurugan, M.R. Thompson, K.G. Dunn "Evaluating the influence of contacting fluids on polyethylene using acoustic emissions analysis", *Polymer Testing*, **39**, 61–69, 2014.

Svante Wold, Nouna Kettaneh-Wold, John F. MacGregor, Kevin G. Dunn, "Batch process modeling and MSPC (Multivariate Statistical Process Control)". *Comprehensive Chemometrics*, In: Brown S, Tauler R, Walczak R (eds.), **2**, 163-197, Oxford: Elsevier, 2009.

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Jay Liu, Manish H. Bharati, Kevin G. Dunn and John F. MacGregor,
"Automatic masking in multivariate image analysis using support vector
machines", *Chemometrics and Intelligent Laboratory systems*, **79**, 42-54, 2005.

b. Not peer reviewed

Kevin G. Dunn, *Process Improvement using Data*, 2015, self-published
textbook used for teaching 4C3/6C3 in 2010, revised every year, up to and
including 2015. Freely downloaded from <http://learnche.mcmaster.ca/pid>

c. Accepted for publication

d. Submitted for publication

e. Unpublished documents

15. Presentations at meetings

Kevin Dunn, MIETL's Learning with Technology Symposium, 2013: Google Docs talk

Kevin Dunn and Terry McCurdy, MIETL's Learning with Technology Symposium,
12 May 2014: Collaborative Testing to Enhance Student Learning.

Minha Ha, Maria Massi, John Preston, Kevin Dunn, Professional development:
"Assessment workshop", 29 July 2014.

Kevin Dunn and Terry McCurdy, Collaborative Testing as a Way to Enhance Student
Learning, presentation at iCEER 2014, 26 August 2014.

President's Retreat on Teaching and Learning, 27 August 2014. Presented about MOOCs
Kevin Dunn, presentation to the Dean of Engineering Advisory Board, 17 October 2014

Kevin Dunn, Teaching with Technology presentation on MOOCs, 22 October 2014

Kevin Dunn, MOOC Workshop, MIETL, 11 November 2014

Terry McCurdy and Kevin Dunn, MIETL, Teaching with Technology talk on Collaborative
Learning on 19 November 2014

Terry McCurdy and Kevin Dunn, MIETL Community of Practice: 1st year teaching; sharing
experiences on collaborative testing; 10 instructors across campus; 26 Jan 2015.

16. Patents, inventions and copyrights

All course materials are copyrighted, © Kevin Dunn, but shared under a Creative Commons
license for other instructors and people to use as they wish.

17. Administrative responsibilities

- Undergraduate Curriculum Committee
- Associate Chair, Undergraduate, Department of Chemical Engineering
- Chemical Engineering Undergraduate Recruiting Committee
- Graduate Attributes Software Committee
- Engineering Representative to McMaster University's Undergraduate Council
 - Chair of the Certificates Committee
 - IQAP committee to review program quality
- Search Committee for Director, Engineering 1
- Selection/search committee for Associate Dean, Academic

18. Other responsibilities

- CLL Community of Practice member: Pedagogy
- CLL Community of Practice member: Teaching professors
- CLL Community of Practice member: Teaching with technology

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