

Curriculum Vitae

S. Richard Taylor

1735 High Ricardo Way
Kamloops BC V2E 1L3
250-372-2210

Dept. of Mathematics & Statistics
Thompson Rivers University
rtaylor@tru.ca

Education

Ph.D., *Applied Mathematics*, 2004.

University of Waterloo, Waterloo, Canada
Faculty of Mathematics
Supervisor: Sue Ann Campbell
Thesis: *Probabilistic properties of delay differential equations*

M.Sc., *Geophysics*, 1999.

University of British Columbia, Vancouver, Canada
Faculty of Earth & Ocean Sciences and the Institute of Applied Mathematics
Supervisor: Rosemary Knight
Thesis: *Modeling elastic wave velocities in porous media*

B.Sc. (Hons.), *Physics*, 1998.

University of British Columbia, Vancouver, Canada
Thesis: *Modeling evaporative drying in porous rock*

Employment

Assistant Professor, *Thompson Rivers University*. Kamloops BC, Aug. 2005–present.

Full-time continuing appointment in the Dept. of Mathematics & Statistics. Class sizes ≈ 30 .

MATH 110 – Finite Mathematics	MATH 224/265 – Differential Equations I
MATH 114/115 – Calculus I	MATH 316 – Differential Equations II
MATH 124 – Calculus II	MATH 365 – Numerical Analysis
MATH 211 – Calculus III	MATH 498 – Calculus of Variations
MATH 130/212 – Linear Algebra I	MATH 499 – Mathematics Demonstrations
MATH 267 – Math. for Electrical-Computer Engineering	

Instructor, *Capilano College*. North Vancouver BC, May–Aug. 2005.

Full-time sessional contract in the Dept. of Mathematics. Class sizes ≈ 20 .

MATH 105 – Pre-Calculus	MATH 124 – Calculus II
-------------------------	------------------------

Assistant Professor, *Okanagan University College*. Salmon Arm BC, Sept. 03–May 05.

Full-time contract, cross-appointed between the Dept. of Mathematics & Statistics and the Dept. of Physics and Astronomy, with substantial administrative duties. Class sizes ≈ 35 .

MATH 111 – Finite Mathematics	MATH 221 – Linear Algebra
MATH 112 – Calculus I	PHYS 111 – General Physics I
MATH 122 – Calculus II	PHYS 121 – General Physics II

Instructor, *British Columbia Institute of Technology*. Burnaby BC, Jan.–March 2003.

Full-time sessional contract in the Dept. of Mathematics. Developed and taught the lab/tutorial component of COMP 3751 (Mathematical Tools for Computing), a new course in differential and integral calculus with Maple for Computer Systems Technology students. Seven lab sections of about 15 students each.

Instructor, *University of British Columbia*. Vancouver BC, Sept.–Dec. 2002.

Part-time sessional contract in the Dept. of Mathematics. Taught MATH 180 (Differential Calculus with Physical Applications). Class size ≈ 60 .

Instructor, *University of Waterloo*. Waterloo ON, Sept.–Dec. 2001.

Part-time sessional contract in the Faculty of Mathematics. Taught MATH 137 (Calculus for Honors Math). Class size ≈ 50 .

Graduate Teaching Assistant, *University of Waterloo*. Waterloo ON, 1999–2001.

Part-time sessional contracts in the Faculty of Mathematics. Conducted tutorials and graded exams and assignments for MATH 127 (Calculus I), MATH 137 (Calculus I for Honors Math) and MATH 237 (Calculus III for Honors Math). Class sizes 20 to 100.

Research Assistant, *University of British Columbia*. Vancouver BC, 1996–98.

Full- and part-time appointments in the Dept. of Geophysics. Conducted independent research on numerical modeling of elastic and hydraulic properties of rock and other porous media.

Consulting

Royal Inland Hospital (Brian Redford, HR Director), 2008.

Programmed computer software to resolve conflicts and optimize resource allocation in the job rotation schedule in the accession area of the RIH laboratory, using genetic and simulated annealing algorithms.

City of Revelstoke Parks & Recreation (Alan Chell, Director), 2008.

Programmed computer software to resolve conflicts and optimize resource allocation in the game schedules for both the annual Big Bear soccer tournament and the Glacier Challenge slowpitch tournament.

Okanagan University College, Salmon Arm Campus (Lynda Wilson, Principal), 2005.

Programmed computer software to resolve conflicts and optimize resource allocation in the course schedule for the 2005-06 academic year, using genetic and simulated annealing algorithms.

Golder Associates Engineering (Matthew Thibeault PEng, Associate), 2004.

Developed formulas for analysis of soil cut geometry in a railway design.

UBC Dept. of Mathematics (Brian Seymour PhD, Professor), 2003–04.

Programmed a suite of Matlab scripts for computing solutions of boundary-value, eigenvalue and integral problems for acoustical modeling.

BC Ministry of Energy, Mines & Petroleum Resources (JoAnne Nelson MSc, PGeo, Senior Mineral Geologist), 2003.

Developed an Excel spreadsheet template for statistical analysis of rock dating.

Publications

- S. Richard Taylor and Sue Ann Campbell, Approximating Chaotic Saddles for Delay Differential Equations. *Phys. Rev. E* 75(4), 2007.
- S. Richard Taylor and Rosemary J. Knight, Incorporating mechanisms of fluid pressure relaxation into inclusion-based models of elastic wave velocities. *Geophysics* 68(4), 1173–81, 2003.
- S. Richard Taylor and Rosemary J. Knight, An inclusion-based model of elastic wave velocities incorporating patch scale fluid pressure relaxation. *Geophysics* 68(5), 1503–9, 2003.
- Richard Taylor and Rosemary Knight, “Numerical Modeling of Evaporation in Porous Rock Samples.” Fall Meeting of the American Geophysical Union, San Francisco, December 1996. Abstract in *EOS Trans. AGU*, 77(46), Fall Meet. Suppl., F746, 1996.

Student Supervision

- Susan Kinniburgh (2010). Mathematics undergraduate honours thesis on ergodic theory.
- Stacey Lamont (2008). Full-time student research assistant funded by a research contract with the Interior Health Authority. Computer-aided automation and optimization for scheduling job rotations in the laboratory at Royal Inland Hospital.
- Timothy Graves (2007). Research term funded by CUEF Undergraduate Student Research Experience Award Program. Independent research on dynamics and regularization of the classical three-body problem.

Academic Awards

NSERC Post-Graduate Scholarship B	U. Waterloo, 2001–03	\$38,200
NSERC Post-Graduate Scholarship A	U. Waterloo, 1999–2001	\$34,600
Mathematics Faculty Graduate Scholarships	U. Waterloo, 1999–2003	\$12,000
University of Waterloo Graduate Scholarship	U. Waterloo, 2000–01	\$1,000
University of BC Graduate Fellowship	UBC, 1998–99	\$15,000
Walter D. Frith Scholarship	UBC, 1997–98	\$900
President’s Entrance Scholarship	UBC, 1993–95	\$4,800
Canada Science Scholarship	UBC, 1993–95	\$5,000

Research Interests

- Dynamical systems, chaos, and ergodic theory; application to delay differential equations.
- Foundations of statistical mechanics; origins of randomness and thermodynamic behavior.
- Numerical analysis, scientific computing, modeling and simulation.
- Models of elastic/hydraulic coupling in porous media.
- Scheduling automation and optimization.

Graduate Courses

2000–01, University of Waterloo

PM 811 – Ergodic Theory and Topological Dynamics (Davidson)

AM 690 – Ergodic Theory reading course (Campbell)

1999–2000, University of Waterloo

AM 731 – Applied Functional Analysis (Siegel)

AM 741 – Numerical Solution of Partial Differential Equations (Simpson)

AM 751 – Advanced Ordinary Differential Equations (Liu)

AM 853 – Symmetries and Differential Equations (Paldus)

1997–99, University of British Columbia

MATH 401 – Green’s Functions and Variational Methods (Peirce)

MATH 551 – Perturbation Methods for Differential Equations (Seymour)

MATH 552 – Introduction to Dynamical Systems (Nagata)

MATH 553 – Advanced Dynamical Systems (Nagata)

GEOG 526 – Theory of the Earth (Buffett)

OCGY 518 – Dynamical Meteorology (Pandolfo)

Technical Skills

- C/C++
- Fortran
- HTML
- XML / XSLT
- Perl
- Maple
- Mathematica
- Matlab / Octave
- R (r-project.org)
- Linux/Unix
- L^AT_EX
- Microsoft / OpenOffice
- Tablix (scheduling)