PATRICK WALLS

Department of Mathematics
University of British Columbia
1984 Mathematics Road
Vancouver, BC V6T 1Z2

pwalls@math.ubc.ca
math.ubc.ca/~pwalls
github.com/patrickwalls
604-822-3045

Employment

Associate Professor Teaching, University of British Columbia, 2020–Present
Instructor, University of British Columbia, 2015–2020
Postdoctoral Fellow, McMaster University, 2013–2015

Education

PhD, University of Toronto, Mathematics, 2007–2013
MSc, University of British Columbia, Mathematics, 2005–2007
BSc, University of Calgary, Mechanical Engineering, 1999–2005
BSc, University of Calgary, Mathematics, 1999–2005

Awards

2019 Faculty of Science Excellence in Service Award

Teaching

Session	Course	Title	Students
2021W1	MATH 258	Differential Equations for Mechanical Engineering	124
2021W1	MATH 307	Applied Linear Algebra	115
2021S1	MATH 307	Applied Linear Algebra	102
2020W2	MATH 254	Multivariable and Vector Calculus for Mechanical Engineering	123

2020W1	MATH 258	Differential Equations for Mechanical Engineering	118
2020W1	MATH 210	Introduction to Mathematical Computing	187
2020S1	MATH 307	Applied Linear Algebra	106
2019W2	MECH 358	Engineering Analysis	108
2019W2	MATH 254	Multivariable and Vector Calculus for Mechanical Engineering	123
2019W1	MATH 258	Differential Equations for Mechanical Engineering	127
2019W1	MATH 210	Introduction to Mathematical Computing	118
2019S1	MATH 307	Applied Linear Algebra	107
2018W2	MECH 358	Engineering Analysis	106
2018W2	MECH 222	Multivariable and Vector Calculus for Mechanical Engineering	121
2018W1	MECH 221	Differential Equations for Mechanical Engineering	124
2018W1	MATH 210	Introduction to Mathematical Computing	109
2018W1	MATH 100	Differential Calculus with Applications to Science and Engineering	141
2018W1	DSCI 511	Programming for Data Science	69
2017W2	MECH 222	Multivariable and Vector Calculus for Mechanical Engineering	129
2017W2	MATH 210	Introduction to Mathematical Computing	97
2017W1	MECH 221	Differential Equations for Mechanical Engineering	133
2017W1	MATH 100	Differential Calculus with Applications to Science and Engineering	101
2017W1	MATH 100	Differential Calculus with Applications to Science and Engineering	197
2017W1	DSCI 511	Programming for Data Science	42
2017S1	MATH 215	Elementary Differential Equations I	125
2016W2	MECH 222	Multivariable and Vector Calculus for Mechanical Engineering	130
2016W2	MATH 210	Introduction to Mathematical Computing	107
2016W1	MECH 221	Differential Equations for Mechanical Engineering	123
2016W1	MATH 180	Differential Calculus with Physical Applications	213
2016W1	MATH 100	Differential Calculus with Applications to Science and Engineering	115
2015W2	MATH 210	Introduction to Mathematical Computing	88
2015W2	MATH 152	Linear Systems	103
2015W2	MATH 152	Linear Systems	235
2015W1	MECH 221	Differential Equations for Mechanical Engineering	130
2015W1	MATH 104	Differential Calculus with Applications to Social Sciences	129
			4232

Projects

Mathematical Python math.ubc.ca/~pwalls/math-python

Web-based open source textbook on mathematical computing with Python and Jupyter. Based on my course notes for MATH 210, consists of 25+ Jupyter notebooks with exercises and covers basic Python programming and numerical methods.

mbgrader github.com/patrickwalls/mbgrader

Custom web application for batch grading MATLAB assignments. "Batch grading" means the app compares numeric data from all student responses and creates a batch for each unique response. Batches are then reviewed and graded by a human grader with feedback. Ideally, mbgrader reduces hundreds of responses to less than 10 batches for a question. Used in MATH 152, 221 and 215/255 and impacts 3000+ students annually.

Applied Linear Algebra ubcmath.github.io/MATH307

Web-based open source textbook on linear algebra with applications built with JupyterBook.

ODE Problem Book gitlab.math.ubc.ca/pwalls/math215

Collection of computational problems for MATH 215/255 assignments.

Interactive Course Map github.com/UBCMath/coursemap

Interactive course map of UBC Math undergraduate programs created with D3.js.

UBC JupyterDays ubc-dsci.github.io/jupyterdays

Co-organizer of an annual event for instructors, researchers and students to learn and share about Jupyter and related tools.