Teaching Experience

I have held formal university-level teaching positions since 2011, teaching in a wide variety of formats and settings to thousands of students across three different countries (Australia, UK, USA). During this time I have had teaching roles in both elite institutions and wide-entry universities, adapting to significant cultural and systemic differences in teaching style. I have run tutorials and sections in class sizes ranging from 2 to 50 students and have given lectures/seminars to both small (<20) and large (>800) cohorts. I have experience writing lectures for new subjects, designing assessment, and coordinating large teams (>10) of teaching assistants. I have held office hours for a subject with ~800 students and have successfully moderated student issues including group assignment clashes, grade disputes, and other inevitabilities.

Throughout these experiences I have consistently shown a strong desire to help first-in-family and minority background students. I have regularly undertaken volunteer teaching and tutoring for disadvantaged groups – such as being a volunteer tutor in Queensland University of Technology's mathematics assistance program STIMulate. At Harvard Medical School, I have supervised student research projects in programs targeted towards minorities. I have won university-wide awards for teaching excellence and have regularly received glowing testimonials from my students.

I have specific experience and expertise in teaching applied mathematics, statistics, programming, and machine learning (subject list included below), often to cohorts with other primary focuses (biologists, health scientists, etc.). I am particularly enthusiastic about teaching courses that use mathematics and machine learning to provide insight into biomedical and biological systems.

Teaching Philosophy

I'm an outcome-focused educator passionate about developing students' technical and problem-solving skills. Mathematical modelling, machine learning and statistical inference are extremely powerful when used appropriately but can do more harm than good when carelessly applied, particularly in fields like medicine and biology. I aim to teach students not only how to use these techniques and technologies, but how to use them appropriately in order to avoid common pitfalls. My teaching philosophy has three core tenants:

1) **Theory should always be connected to application.** Each class I teach should connect the theory to real-world applications. This is both to provide tangible motivation to students and to help students develop more holistic thinking – asking why we build models and understanding how careless modelling can lead to incorrect insights.
2) **A student's technical skills will only ever be as valuable as their communication skills**. Mathematical jargon is often used to obfuscate in interdisciplinary collaborations. I aim to teach students how to communicate their analysis in clear and open ways, so that they develop skills that will be beneficial to them throughout their careers.
3) **Mathematics should be taught as a way of thinking rather than as a toolkit**. I have consistently found that moving students away from conceiving of mathematics as a series of tools to be used in different scenarios, and towards seeing mathematics as a way of approaching problems leads to higher student confidence, engagement, and overall improved learning. This tenant particularly informs how I structure assessment.

This approach provides students with the skills to not just build models and analyse data, but to understand when models should be built, and to ask how these skills can help collaborators in their domain. These are the skillsets needed to both help students progress through their degree and to make sure they graduate ready to undertake high-quality, impactful work in their careers.

List of Taught Courses

Institution	Dates	Course Title	Course Level	Role	Class Size	Description	Duties
Harvard Medical School and Massachusetts Institute of Technology	Summer 2019, Summer 2020	MATLAB for Medicine	Postgraduate	Instructor	30	Programming course for medical degree students, focused on simulation and data analysis of biomedical systems.	Lectured parts of course. Worked with student groups in a tutorial setting to correct code.
University of Oxford	Fall 2016, Fall 2017	Doctoral Training Centre: Introductory Programming	Postgraduate	Instructor	70	Programming course for interdisciplinary biology PhD students. Focused on use of mathematics, statistics and programming in biologic research	Intensive full day sessions helping/advising students as they work on problem sets and personal projects
University of Oxford	Spring 2016, Spring 2017, Spring 2018	Doctoral Training Centre: Biological Data Analysis	Postgraduate	Instructor	70	Advanced programming course for interdisciplinary biology PhD students. Focus on machine learning, and mathematical modelling in biologic systems.	Intensive full day sessions helping/advising students as they work on problem sets and personal projects
University of Oxford	Fall 2017	Continuous Mathematics	1st year Undergraduate	Tutor	4	Focused on introduction to mathematical analysis, proofs, and calculus.	Ran 2-on-1 tutorial sessions. Marked all assessment, and wrote problem sets.
OxBridge Academic Programs (at Cambridge University)	Summer 2016, Summer 2017	Introduction to Engineering	Late secondary school	Program head	30	Intensive summer program for senior secondary school students from around the world. Theory and application across all major areas of engineering.	Gave daily lectures and ran practical sessions. Wrote all lectures and assessment. Mentored students outside of teaching hours
Queensland University of Technology	Fall 2015, Spring 2015	Engineering Computation	1st year Undergraduate	Lecturer, Assistant Unit Coordinator	800	Introductory mathematics course for QUT's flagship engineering degree. Topics focused on calculus, differential equations, probability theory, and computational methods for data analysis.	Gave weekly 2hr lectures. Wrote all lectures, tutorials and assessment. Coordinated team of >10 tutors. Held office hours and responded to student emails.
Queensland University of Technology	Fall 2015, Spring 2015	Computational Mathematics 1	1st year Undergraduate	Lecturer, Assistant Unit Coordinator	300	Introductory programming degree for the mathematics degree, focused on simulation of physical phenomena.	Gave weekly 3hr lecture. Wrote all lectures, tutorials and assessment. Coordinated tutorial team. Held office hours and responded to student emails.
Queensland University of Technology	Fall 2015, Spring 2015	Mathematical Modelling	2nd year Undergraduate	Tutor	50	Project-based course focused on using mathematics to model real-world scenarios.	Ran weekly tutorial sessions (2hrs). Marked assessment. Worked with student teams to help them define their project and perform meaningful analysis of their problem.
Queensland University of Technology	Fall 2012, Spring 2012	Statistics for Biomedicine	2nd year Undergraduate	Tutor	50	Basics of statistical data analysis, with focus on biomedical applications. For students in pre-med track degree.	Ran weekly tutorial sessions (2hrs), marked assessment.
Queensland University of Technology	Fall 2011, Spring 2011	Introductory Calculus and Algebra	1st year Undergraduate	Tutor	75	Bridging course designed for students who did not take high-level mathematics at high school. Wide array of students, in wide array of degree programs.	Ran weekly tutorial sessions (1-2hrs). Marked assessment.
Queensland University of Technology	Spring 2011 through Spring 2015	STIMulate Program	Undergraduate (all years)	Tutor	Variable	Volunteer drop-in program where students in any degree program could come to ask for 1-on-1 help in mathematics and statistics	Drop-in tutor for ~5hrs each week, for 4 years. Worked closely with students from higher-risk groups (minorities, first-in-family, etc.)

Note: While at Queensland University of Technology, I tutored many subjects over a 4-year period. For brevity, only a subset of these has been included. Subjects not in the table below are:
Introduction to Linear Algebra; Introduction to Probability Theory; Introduction to Advanced Mathematics; Advanced Calculus; Computational Mathematics 3; Discrete Mathematics;
Probability and Stochastic Analysis. Each involved similar duties (teaching classes of 20-30 students, in a section/tutorial format, and marking assessment for these students).