James Graham

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Education

University of Oxford, Oxford, UK   2017
      MSc Mathematical & Theoretical Physics, Distinction
Northwestern University, Evanston, IL   2016
      BS Applied Mathematics, summa cum laude

Experience

Instructor, Mathnasium of Mount Vernon, Alexandria, VA   Dec. 2017–Feb. 2018
- Taught students topics from elementary through high school in a small group setting;
- Managed individualized workflows of several students simultaneously;
- Enthused students in mathematics by relating my experiences to theirs

Non-Perturbative Methods in Quantum Field Theory, University of Oxford   Mar.–Apr. 2017
- Simulated a $U(1)$ gauge theory with C++;
- Implemented the Metropolis algorithm;
- Extracted physical quantities from correlation functions with MATLAB and Excel.

Architectural Engineering and Design, Northwestern University   Sept.–Dec. 2014
- Synthesized a design concept for a model site to satisfy client's needs;
- Constructed detailed scale model of house and environs;
- Pitched my solution to a panel of architects and engineers.

Research Assistant, Engineering Science & Applied Mathematics, Northwestern University   Mar. 2015–Jan. 2015
- Simulated Hogdkin-Huxley neurons using the BRIAN package in Python;
- Investigated synchronization of neural firing in presence of periodic stimulus.

Research Assistant, Engineering Science & Applied Mathematics, Northwestern University   Apr.–Sept. 2013
- Integrated memory cortex model into simulation of signal decorrelation with MATLAB;
- Investigated synapse survival through stimulation by memories

Tutor, Integrated Science Program, Northwestern University   Sept. 2015–Mar. 2016
- Held office hours once per week for three hours;
- Assisted ISP students with work ranging from problem sets to grant proposals.

Leadership

Lead Instructor, Mathnasium of Mount Vernon, Alexandria, VA   Feb. 2018–Present
- Assemble and manage curriculum for more than 100 students;
- Prepare progress reports to share students' learning with parents;
- Manage instruction and administrative tasks in a team of 9 instructors;
- Coordinate training for new instructors.

Social Secretary, Pembroke College Middle Common Room, Oxford, UK   Nov. 2016–Jun. 2017
- Delegated and shared tasks in a group of three;
- Organized three formal halls and one black tie event per term.

Teaching Assistant, Department of Mathematics, Northwestern University   Sept. 2015–Mar. 2016
- Led a weekly discussion section on calculus for one hour;
- Answered students' questions about problem sets;
- Invigilated and marked two department-wide quizzes and up to three exams per term.

Awards

Outstanding Graduate Prize in Applied Mathematics   2016
Roger Boye Oxbridge Bursary to support study at Oxford   2016
Summer Research Opportunities Award to support summer research   2014
Merck Index Award for outstanding performance in organic chemistry   2013
Woody Herman Jazz Award for four years of service to my high school's jazz band   2012

Skills

C++ • Python • MATLAB • Mathematica • LaTeX • HTML • CSS
English • German • Russian
Communication • Time Management • Self-Motivation • Teamwork