# James Graham

jngraham@u.northwestern.edu • +1 (571) 447 3328 • United States Permanent Resident
jngraham.com • github.com/jngraham • linkedin.com/in/j-n-graham

## 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. 2014–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.—Nov. 2018
- 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