

David Buch

Contact Information	Department of Mathematics West Virginia University Morgantown, WV 26505	<i>Phone:</i> 304-860-5895 <i>Office:</i> 416 Armstrong Hall <i>Email:</i> dnbuch@mix.wvu.edu
Education	West Virginia University , Morgantown, WV M.S., Applied Mathematics - 4.0 GPA	In-Progress
	West Virginia University , Morgantown, WV B.S., Mathematics and Physics, <i>Summa cum Laude</i> - 3.84 GPA Area of Emphasis: Biophysics Minor: Statistics	2018 (Honors College)
Honors and Awards	<ul style="list-style-type: none">• National Merit Scholar 2014• National Advanced Placement Scholar 2014• United States Presidential Scholar 2014• West Virginia University Whitehill Memorial Award for General Chemistry 2015• West Virginia University Eberly Scholar 2018• West Virginia University Outstanding Senior 2018	
Peer-Reviewed Publications	<i>Improving performance of SEOBNRv3 by $\sim 300\times$</i> T.D. Knowles, C. Devine, D.A. Buch , S.A. Bilgili, T.R. Adams, Z.B. Etienne, S.T. McWilliams. Classical and Quantum Gravity. 35: 15	2018
	<i>Collective repacking reveals that the structures of protein cores are uniquely specified by steric repulsive interactions</i> J.C. Gaines, A. Virrueta, D.A. Buch , S.J. Fleishman, C.S. O'Hern, and L. Regan. Protein Eng. Des. Sel. 30: 387	2017
Presentations	<i>Defining the Characteristics of a West Virginia First Generation and Rural Stem Student</i> M. Darrah, R. Humbert, D. Buch Poster presentation at the West Virginia Academy of Science Annual Meeting	2019
	<i>SEOBNRv3_opt - A Case Study in Code Optimization for the Benefit of LIGO Science</i> D.A. Buch, Z.B. Etienne Oral presentation at the 28th Annual Midwest Relativity Meeting (University of Wisconsin - Milwaukee)	2018
	<i>Optimized Numerical Approximation of Einstein's Equations through Coordinate System Management</i> Poster presentation at WVU Mathematics Department Capstone Day	2018

Experimental Validation of van der Pol Oscillator Theory in a Unijunction Transistor Circuit Model System **2018**

Poster presentation at WVU Physics Department Spring 2018 Undergraduate Research Day

Graphite-Lattice measurement through Matter-Wave Diffraction **2017**

Poster presentation at WVU Physics Department Fall 2017 Undergraduate Research Day

Evaluating a Simplified Approach to Protein Modeling Using Rotamer Recovery Tests and the Rosetta Software Suite **2015**

Poster presentation and oral presentation at Raymond and Beverly Sackler Institute NSF-REU (Yale University)

**Teaching
Experience**

Math 694 (Professional Tools Seminar) **(upcoming) Spring 2019**

West Virginia University, Morgantown, WV

- Data Analysis and Visualization with R

Graduate Teaching Assistant (Mathematics) **Fall 2018**

West Virginia University, Morgantown, WV

- Lab TA, grader for Calc 153, Fall 2018

GRE Tutor **Fall 2017-**

NextStep Test Preparation

- “Premium” Tutor beginning Spring 2019

WVU Athletic Tutor **Fall 2016**

West Virginia University Athletic Department, Morgantown, WV

Violin/Cello Instructor **Fall 2013-Spring 2014**

School of Harmony, Beaver, WV

**Academic
Activities**

NSF INCLUDES - Graduate Research Assistantship **Spring 2019**

LIGO Scientific Collaboration **Summer 2016**

Raymond and Beverly Sackler NSF-REU in Biophysics **Summer 2015**

**Community
Service &
Leadership**

WVU Math Club Vice-President, Treasurer

WV Chapter of the Sierra Club, Executive Committee

WVU Sierra Student Coalition, Vice President

WV Science Public Outreach Team Ambassador

Skills

Computing: C, C++, R, Python, Git, L^AT_EX

Operating Systems: Unix, Ubuntu Linux

Languages: English (fluent), Spanish (basic-conversational)

Music: WVU Symphony Orchestra, WVU Undergraduate String Quartet, WV Symphony Vaughan Fellowship 2013, WV All-State Orchestra 2012-2014

Service	Trinity Christian School Science Fair Judge WV Math and Science Bowl Judge
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Other Work Experience	<i>Daily Athenaeum</i> - Copy Writer West Virginia University, Morgantown, WV <i>Line Server</i> Qdoba Mexican Grille, Beckley, WV	Spring 2016 Fall 2013-Spring 2014
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