

Philip D. Eaton

Curriculum Vitae

PERSONAL DETAILS

Birth: May 24, 1991
Cell: (701) 721-4366
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EDUCATION

Master of Science in Physics May, 2016
Montana State University GPA: 3.86/4.0

Bachelor of Science in Physics May, 2014
University of North Dakota Summa Cum Laude, GPA: 4.0/4.0

Bachelor of Science in Mathematics May, 2014
University of North Dakota Summa Cum Laude, GPA: 4.0/4.0

PROFESSIONAL EXPERIENCE

Graduate Teaching Assistant 2014 – Present
Montana State University – Department of Physics
Lab Instructor or Lead Instructor for physics classes offered by the physics department.

HONORS AND AWARDS

2016 Fall Outstanding GTA Award Montana State University – Department of Physics
2015 Outstanding GTA Award Montana State University – Department of Physics

ACADEMIC COMMITTEE SERVICE

Member of the Graduate Admissions Committee 2017 – Present
Montana State University - Department of Physics
Helped develop and improve the sorting algorithm for the graduate admission process that helped expedite the entire process.

Member of the Graduate Curriculum Committee 2016 – 2018
Montana State University - Department of Physics
Liaison between the physics graduate students and the physics department.

Member of the Graduate Recruiting Committee 2016 – 2018
Montana State University - Department of Physics
Organized the “Recruiting Weekend” and assisted in recruitment efforts for the physics department.

PROFESSIONAL COMMITTEE SERVICE

Academic Journal Referee 2017 – Present
Phys. Rev. PER

RESEARCH INTERESTS

Assessment Analysis

Use psychometric tools to investigate student response data for commonly used assessments to probe the statistical structure of the instrument pre- and post-instruction.

World View Analysis

Use psychometric tools, such as factor analysis, to investigate student response data to uncover stable/unstable student world views for pre- and post-instruction results as measured by conceptual instruments.

Assessment Construction

Building and validating new and/or improved assessments for physics topics from the introductory level to the graduate level.

RESEARCH COLLABORATIONS

Physics Inventory of Quantitative Literacy – University of Washington

PI: Dr. Suzanne Brahmia

SKILLS

Software: R, Python, Mathematica, L^AT_EX

Psychometrics: Exploratory Factor Analysis, Confirmatory Factor Analysis, Item Response Theory, Multi-trait Item Response Theory, Classical Test Theory

TEACHING EXPERIENCE

Physics III (w/ calculus)

Summer 2017, Summer 2018

Montana State University - Department of Physics

Honors General and Modern Physics II

Spring 2017, Spring 2018

Montana State University - Department of Physics

Physics II (w/ calculus)

Summer 2016, Summer 2017

Montana State University - Department of Physics

Physics I (w/ calculus)

Summer 2016

Montana State University - Department of Physics

Physics by Inquiry

Spring 2016

Montana State University - Department of Physics

College Physics I

Summer 2015

Montana State University - Department of Physics

OUTREACH EVENTS AND INFORMAL EDUCATION

MSU Explore: Earth & Space Science Camp

2016/17/18

Montana State University - Extended University

A 1 week classes about Electricity and Magnetism (2017/18), and a class about Gravitation (2016)

Peaks and Potentials Science Camp

2017/18

Montana State University - Extended University

A 1 week class about Electricity and Magnetism

Nano/Micro Day (MSU Family Science Day)

17/18

Montana State University - Extended University

Presented/explained mechanics, E&M, and general relativity demos for children and their families.

Outreach team member

2016 – 2017

Montana State University - eXtreme Gravity Institute

Constructed lesson plans for topics in Gravitation to be used in K – 12 classes.

LIST OF SELECTED PRESENTATIONS AND WORKSHOPS

- *Research Programs in Physics* – Montana State University, Fall 2017

MSU undergraduate course about research presently taking place in the physics department and in the world.

- *Utilization and Interpretation of Factor Analysis in the Classroom* – American Association of Physics Teachers, Jan '19

PUBLICATIONS

- **“Examining the evolution of student conceptual understanding on the force concept inventory using exploratory factor analysis and item response curves”**; Eaton, Philip & Willoughby, S. (In-process)
- **“Confirmatory Factor Analysis applied to the Force Concept Inventory”**; Eaton, Philip & Willoughby, S. (In-process)