

# Samuel D. Flynn

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## EDUCATION

**Wake Forest University**, Winston-Salem, NC

Graduation Date: May 2013

*Major: Bachelor of Science with Honors in Physics*

*Minor: Mathematics*

Major GPA: 3.62/4.0; Cumulative GPA: 3.21/4.0

**North Carolina State University**, Raleigh, NC

Physics Ph.D Student

August 2014-Current

## RELEVANT COURSEWORK

**NC State: Graduate Level:** Classical Mechanics, E&M(2 semesters), Quantum Mechanics, General Relativity, Statistical Mechanics, Quantum Field Theory (current), and Computational Physics (current).

**Wake Forest: Graduate Level:** Classical Mechanics, E&M, Quantum Mechanics (2 semesters), and Statistical Mechanics.

**Undergraduate Level:** Modern Physics, Electronics, Classical Mechanics (1.5 Semesters), E&M (1.5 semesters),

Quantum Mechanics (2 semesters), Cosmology, Optics, Particle Physics, Thermodynamics/Statistical Mechanics.

**Mathematics:** Multivariable Calculus, Linear Algebra, Ordinary Differential Equations, Advanced Mathematics for the Physical Sciences, Numerical Methods, Abstract Algebra, Representation Theory.

**Chemistry:** General chemistry I&II (AP credit) with labs, Organic Chemistry I&II with labs, Physical Chemistry.

**Computer Science:** Working knowledge of LaTeX, Maple, Mathematica, Python.

## PROFESSIONAL EXPERIENCE

**Researcher, North Carolina State University, Particle/Astrophysics**, Raleigh, NC

Aug 2014 – Currently

- Worked with Dr. Gail McLaughlin investigating the neutrino oscillations in cosmological settings, including black hole accretion disks and protoneutron stars.
- Work includes first principles investigations into MNR effects in black hole accretion disks, and multi-angle, multi-energy simulations of protoneutron star neutrinos.

**Researcher, Wake Forest University, Theoretical Particle Physics**, Winston-Salem, NC

Jan 2011 – May 2013

- Worked with Dr. Eric Carlson to explore the properties of theoretical long lived neutrino “stars”.
- Learned additional topics including numerical methods, general relativity, particle physics, and quantum field theory.
- Worked both alone and with Dr. Carlson on all aspects of the research.
- Presented a poster and talks on this research at Society of Physics and Wake Forest University conferences.
- Preparing a paper for publication, and wrote a thesis for the distinction of graduating with honors in physics.

**Researcher, Wake Forest University, Science Education**, Winston-Salem, NC

Jun 2010 – Jun 2012

- Worked with Dr. Jed Macosko on two projects to improve the state of science education.
- Helped develop “Biobook”, a non-linear electronic textbook structured around the way that students learn.
- Acted as Teaching Assistant for a first year seminar where students helped to develop the BioBook
- Assisted in adapting the Biobook concept to physics for the “Physbook” project.

**Teaching Assistant, NC State Physics Dept.(2014-2015) / Wake Forest Physics Dept.(2011-2014)**

- Led lab sessions, including lectures and demonstrations of lab concepts and procedures, for 3 different introductory physics labs, as well as the higher level “Modern Physics” lab and electronics lab, intro lab for physics majors, and intro lab for engineering majors.
- Helped run online classes for natural science majors. Answered questions via email/forums, in person, graded.
- Serve as a primary resource for students in and out of lab sessions and evaluated students’ reports
- Led tutorial sessions twice weekly, answering questions and solving problems in a classroom like setting.

## LEADERSHIP AND CONFERENCES

**President, Graduate Physics Students Association, NC State University**

May 2015

- Elected by members of the university graduate physics students to oversee planning, fundraising, and meetings.

**Society of Physics Zone Conference**

April 2012

- Invited to speak at the SPS zone conference on my research. Received an award for best talk.

**President, Society of Physics Students, Wake Forest University**

April 2012 – Present

- Elected by members of the university chapter to oversee event planning, fundraising, and meetings

**Undergraduate Representative for Physics Department Program Review**

August 2012 – Present

- Served as a peer adviser to first year students, assisting with course scheduling and campus acclimation