

# JACOB D. AUSTIN

jacob.austin@my.simpson.edu  $\diamond$  515-205-1709

914 SE Chaparal Dr, Ankeny, IA 50021

## PERSONAL

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### Research Interests

- Utilize an interdisciplinary approach to creatively solve problems
- Implement computational methods to enhance experimental techniques in laboratory settings

**Qualities:** Ambitious, Effective Communicator, Enthusiastic, Hardworking, Motivated, Responsible

## EDUCATION

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**Simpson College**, Indianola, IA

Physics and Mathematics Major

GRE: Quantitative Reasoning:

Verbal Reasoning:

Analytical Writing:

Physics GRE:

*August 2017 - Present*

Overall GPA: 4.0/4.0

**Ankeny High School**, Ankeny, IA

Graduation with Honors Diploma

ACT: 31

*August 2013 - May 2017*

Overall GPA: 3.99/4.0

## TECHNICAL SKILLS

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**Computer Languages**

C++, Java, Javascript, Mathematica

**Software & Tools**

L<sup>A</sup>T<sub>E</sub>X, Microsoft Office

**Operating Systems**

Windows, Macintosh

## RELEVANT COURSES

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### Core Courses

Quantum Mechanics (Spring 2018)

Modern Physics

Intro to Laser Science

Experimental Physics

### Other Courses

Maxwell's Equations

Differential Equations (Spring 2018)

Calculus I,II, & III

Prob/Stat & Linear Algebra

## PUBLICATIONS

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## WORKS IN PROGRESS

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## PRESENTATIONS

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**Austin, Jacob.**, Kaylee Grabarkewitz and Katlyn York. "Theoretical Light Scattering off Nanoparticles." MAA Sequences, Approximations, and Fourier Analysis. Joint Mathematics Meeting. January 18, 2019. Baltimore, MA. Conference Presentation.

**Austin, Jacob.**, Kaylee Grabarkewitz and Katlyn York. "Theoretical Light Scattering off Nanoparticles." Student Talks. MAA Undergraduate Poster Session. Joint Mathematics Meeting. January 18, 2019. Baltimore, MA. Conference Presentation. Conference Poster.

**Austin, Jacob.**, Kaylee Grabarkewitz and Katlyn York. "Theoretical Light Scattering off Nanoparticles." Simpson College Summer Research Symposium. November 28, 2018. Indianola, IA. Presentation.

**Austin, Jacob.**, Kaylee Grabarkewitz and Katlyn York. "Theoretical Light Scattering off Nanoparticles." Simpson College Summer Research Symposium. October 31, 2018. Indianola, IA. Poster.

**Austin, Jacob.**, Kaylee Grabarkewitz and Katlyn York. "Theoretical Light Scattering off Nanoparticles." Conference for Undergraduate Women in Physical Sciences . October 12, 2018. Lincoln, NE. Conference Poster.

**Austin, Jacob.**, Kaylee Grabarkewitz and Katlyn York. "Theoretical Light Scattering off Nanoparticles." Computers, Data, and Research. Simpson College Summer Lecture Series. July, 25, 2018. Indianola, IA. Lecture.

## RESEARCH EXPERIENCE

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**Theoretical Light Scattering off Silver and Gold Nanoassemblies** May 2018 - December 2018  
*Simpson College*

- Simulate theoretical light scattering off arbitrary nanoparticles
- Experimental application to genomic testing for neurodegenerative diseases
- Received summer 2018 funding through Bryan Research Program Simpson College

**Measurement of Light Absorption in Rubidium Cells** March 2018 - December 2018  
*Simpson College*

- Measure experimentally absorption of light in rubidium cells
- Collect data using laser, rubidium cells, and a photometer
- Work with Bouguers equation to measure intensity

## EMPLOYMENT

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**Simpson College Hawley Academic Center Tutor** August 2018 - Present  
*Physics and Mathematics* *College Students*

- Worked part-time as a Physics and Mathematics tutor to improve various categorical skills
- Topics covered include: Introductory Physics (Algebra based), Introductory Physics (Calculus based), Calculus I - III, Probability and Statistics, etc.

**Target Corporation** June 2015 - Present

- Stock and merchandise the sales floor
- Assist customers in finding products and answer their questions
- Experience with cashier and customer service

**Family Christian Bookstores** October 2014 - June 2015

- Stock and merchandise the sales floor
- Assist customers in finding products and answer their questions
- Experience with cashier and customer service
- Assist manager in deposits at bank

## ACADEMIC ACHIEVEMENTS

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Bryan Summer Research Program: Simpson College 2018 (\$4,000)  
Society of Physics Students Member  
Sigma Alpha Epsilon - Iowa Sigma Eminent Treasurer  
Simpson College Cowles Fellowship: \$27,000  
Simpson College Physics Club Treasurer  
Simpson College Math Club  
Simpson College Chemistry Club  
University Physics Competition Participant  
Interdisciplinary Contest in Modeling: Honorable Mention

## REFERENCES

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<b>Dr. Heidi Berger</b> heidi.berger@simpson.edu	Simpson College Associate Professor of Mathematics 515-961-1837
<b>Dr. Nicolas Rey-Le Lorier</b> nicolas.reylelorier@simpson.edu	Simpson College Assistant Professor of Physics 515-961-1853
<b>Dr. David Olsgaard</b> david.olsgaard@simpson.edu	Simpson College Professor of Physics 515-961-1829