## JACOB C. BUCHANAN

Oregon State University, Chemistry

### Degrees:

B.S. in Chemistry, Central Washington University
B.A. in Physics, Central Washington University

### Advisor:

Paul Cheong, PhD

### Scholar Award Donor:

ARCS Foundation Portland Chapter

### About the Scholar:

Jacob is using computational methods in materials chemistry to study using thin films in electronic applications.

### Benefits to Society:

Jacob's work aids in the development of new versatile materials for use in electronic devices.

### Awards and Honors:

2014 – CWU Deans Scholar Award
2014 – Recipient of Chemistry Alumni Award, CWU, $200
2014 – ACS Undergraduate Award in Organic Chemistry
2014 – CWU SOURCE 2014 Outstanding Presentation Award
2014 – ACS Division of Organic Chemistry Travel Grant, $600
2013 – Office of Undergraduate Research Travel Fellowship, CWU, $500
2013 – ACS Undergraduate Award in Inorganic Chemistry
2013 – Office of Undergraduate Research Fellowship, CWU, $200
2012 – College of the Sciences Undergraduate Research Grant, CWU, $500
2012 – Recipient of Jerry & Gail Jones Chemistry Scholarship, CWU, $450
2012 – Recipient of Alumni Association Departmental Scholarship, CWU, $1000

### Publications and Posters:

**Publications:**


- Ge, Y.; Rittenhouse, R. C.; Buchanan, J. C.; Livingston, B. Using a Spreadsheet to Solve the Schrödinger Equations for the Energies of the Ground Electronic State and the Two Lowest Excited States of $H_2$. *J. Chem. Educ.* **2014,** *91,* 853-859.
- Buchanan, J. C.; Petersen, B. P.; Chamberland, S. Concise total synthesis of phidianidine A and B. *Tetrahedron Letters* **2013,** *54,* 6002-6004.

**Oral Presentations:**

- Buchanan, J. C.; Ge, Y. Using a Spreadsheet to Solve the Schrödinger Equations for $H_2$ in the Ground and Excited States. Presented at Symposium On University Research and Creative Expression (SOURCE), Central Washington University (CWU), May 15, 2014.
- Buchanan, J.; Livingston, B.; Ge, Y. Using a spreadsheet to solve the Schrödinger equations for small molecules: An undergraduate quantum chemistry lab. Presented at 68$^{th}$ ACS Northwest Regional Meeting, Corvallis, OR, USA, July 21-24, 2013.

**Poster Presentations:**

- Buchanan, J. C.; Sundalam, S. K; Stuart, D. R.; Cheong, P. H.-Y. Computational Study of Diaryliodonium Reagents for Heteroatom Arylation Reactions. Presented at American Chemical Society National Meeting, Denver, CO, March 22, 2015.
- Buchanan, J. C.; Petersen, B. P.; Chamberland, S. Concise Total Synthesis of Phidianidines A and B. Presented at Symposium On University Research and Creative Expression (SOURCE), Central Washington University (CWU), May 15, 2014.
- Buchanan, J. C.; Petersen, B. P.; Chamberland, S. Concise Total Synthesis of Phidianidines A and B. Presented at American Chemical Society National Meeting, Dallas, TX, March 19, 2014.
- Buchanan, J. C.; Petersen, B. P.; Chamberland, S. Synthesis of Phidianidines A and B. Presented at Symposium On University Research and Creative Expression (SOURCE), Central Washington University (CWU), May 16, 2013.