

Michael A. Christiansen

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EDUCATION

Ph.D. 2010 Organic Chemistry, Brigham Young University, Provo, UT
BS 2004 (*cum laude*), Utah State University, Logan UT

ACADEMIC INTERESTS

- Creating new ways of providing high-quality educational materials to broader audiences
- Restructuring lab courses to include student-designed research projects
- Developing new technologies for assembling medicines and natural molecules more efficiently
- Exploring how natural medicines are assembled by nature

PROFESSIONAL APPOINTMENTS

Aug 2011 –	Assistant Professor, Department of Chemistry & Biochemistry, Utah State University Uintah Basin Campus, Vernal, UT
Apr 2010 – Aug 2011	Postdoctoral Fellow, Department of Chemistry, Colorado State University, Fort Collins, CO
Aug 2004 – Apr 2010	Graduate Student, Department of Chemistry & Biochemistry, Brigham Young University, Provo, UT
Jun 2001 – Aug 2004	Undergraduate Researcher, Spendlove Research Foundation (now Quansys Biosciences), Logan UT

AWARDS AND AFFILIATIONS

American Chemical Society member (February 2008 – present)
2013 USU Undergraduate Research Mentor of the year
2009-2010 BYU Research Presentation Award
2008-2009 Telford and Frank Woolley Memorial Research Award
2008-2009 Charles E. and Margaret P. Maw Fellowship
2008-2009 BYU Research Presentation Award
2008 American Chemical Society Spring Research Conference Top Presenter Award
2007-2008 Garth L. Lee Award
2007-2008 Roland K. Robins Graduate Research Fellowship

AWARDS TO STUDENTS

- 2013 USU RCDE Undergraduate Researcher of the Year Award, presented to Cathy Crawford (undergraduate mentee of Dr. Michael A. Christiansen)
- 2013 USU Uintah Basin Undergraduate Researcher of the Year Award, presented to Cathy Crawford (undergraduate mentee of Dr. Michael A. Christiansen)
- 2012 Summer Undergraduate Research & Creative Opportunity (SURCO) Award, presented to Cathy Crawford (undergraduate mentee of Dr. Michael A. Christiansen)
- 2012 Fall Undergraduate Research & Creative Opportunity (URCO) Award, presented to Cathy Crawford (undergraduate mentee of Dr. Michael A. Christiansen)

PEER-REVIEWED PUBLICATIONS

*Indicates undergraduate student coauthor

Articles in Review (manuscript available on request)

- Edwards, B. F.; Sam, D. D.; **Christiansen, M. A.** Water Balloon Launcher Design with Fully Adjustable Initial Velocity. Submitted to *Am. J. Phys.* on XXX, 2013. In Review.
- Christiansen, M. A.** Inverted Teaching: Applying a New Pedagogy to a University Organic Chemistry Class. Submitted to *J. Chem. Educ.* on July 22, 2013. In Review.
- Christiansen, M. A.**; Crawford, C. L.*; Mangum, C. D.*; Funk, B. D.*; Lance, K. J.*; Liddell, M. S.* Less Cookbook and More Research! Synthetic Efforts Toward JBIR-94 and JBIR-125: a Student-Designed Research Project in a Sophomore Organic Chemistry Lab. Submitted to *J. Chem. Educ.* on June 20, 2013. In Review.

Published Articles

- Christiansen, M. A.**; Andrus, M. B. "BOTPPI, a New Wittig Salt Used in the Synthesis of 12-(S)-Hydroxy-Eicosatetraenoic Acid [12-(S)-HETE]." *Tetrahedron Lett.* **2012**, 53, 4805-4808.
- Rath, C. M.; Janto, B.; Earl, J.; Ahmed, A.; Hu, F. Z.; Hiller, L.; Dahlgren, M.; Kreft, R.; Yu, F.; Wolff, J. J.; Kweon, H. K.; **Christiansen, M. A.**; Hakansson, K.; Williams, R. M.; Ehrlich, G. D.; Sherman, D. H. "Meta-omic characterization of the marine invertebrate microbial consortium that produces the chemotherapeutic natural product ET-743." *ACS Chem. Biol.* **2011**, 6, 1244-1256.
- Peterson, M. A.; Oliveira, M.; **Christiansen, M. A.**; Cutler, C. E. "Preliminary SAR Analysis of Novel Antiproliferative *N*⁶,5'-Bis-Ureidoadenosine Derivatives." *Bioorg. Med. Chem. Lett.* **2009**, 19, 6775-6779.
- Andrus, M. B.; Harper, K. C.; **Christiansen, M. A.**; Binkley, M. A. "Phase-Transfer Catalyzed Asymmetric Arylacetate Alkylation." *Tetrahedron Lett.*, **2009**, 50, 4541-4544.
- Peterson, M. A.; Oliveira, M.; **Christiansen, M. A.** "Antiproliferative and Protein Kinase Binding Activities of Some *N*⁶,5'-Bis-ureido 5'-Amino-5'-deoxyadenosine Derivatives." *Nucleosides, Nucleotides and Nucleic Acids*, **2009**, 28, 394-407.
- Christiansen, M. A.**; Butler, A. W.; Hill, A. R. Andrus, M. B. "Synthesis of Kurasoin B Using Phase-Transfer-Catalyzed Acylimidazole Alkylation." *Synlett*, **2009**, 4, 653-657.

Published Articles (continued)

Andrus, M. B.; **Christiansen, M. A.**; Hicken, E. J.; Gainer, M. J.; Bedke, D. K.; Harper, K. C.; Mikkelsen, S. R.; Dodson, D. S.; Harris, D. T. "Phase-Transfer-Catalyzed Asymmetric Acylimidazole Alkylation." *Org. Lett.* **2007**, 9, 4865-4868.

OTHER ARTICLES (not peer-reviewed)

Christiansen, M.A.; Edwards, B. F.; Sam, D. D. "Schematics of a Water Balloon Launcher Design and Reproducible Water-Balloon-Filling Procedures Used for a Middle School Summer Science Camp." *USU Uintah Basin Faculty Publications* **2013**, Paper 1. http://digitalcommons.usu.edu/ub_facpubs/1.

Christiansen, M.A.; Jessup, L.; Woodward, K. D. "An Electrolysis Experiment for a Middle School Summer Science Camp." *Chemistry & Biochemistry Faculty Publications* **2013**, Paper 456. http://digitalcommons.usu.edu/chem_facpub/456/.

Andrus, M. B.; Harper, K. C.; **Christiansen, M. A.**; Binkley, M. A. "Phase-Transfer Catalyzed Asymmetric Arylacetate Alkylation." *Synfacts*, **2009**, 8, 920.

RESEARCH PRESENTATIONS

*Presentation given by an undergraduate student coauthor

Christiansen, M. A. "Embedding a Student-Designed Research Experience into an Undergraduate Organic Chemistry Lab." 246th Semiannual ACS National Meeting, Indianapolis, IN, United States, Sept 11, **2013**. *Oral presentation*.

Christiansen, M. A. "Embedding a Student-Designed Research Experience into an Undergraduate Organic Chemistry Lab." 2nd Process-Oriented Guided Inquiry Learning (POGIL) Southwest Regional Workshop, Colorado Springs, CO, United States, July 17, **2013**. *Oral presentation*.

Christiansen, M. A. "The Use of Flip-Teaching in Undergraduate Organic Chemistry." 2nd Annual Uintah Basin Research Conference at Utah State University Regional Campus, Vernal, UT, United States, April 12, **2013**. *Poster*.

Crawford, C. L.*; **Christiansen, M. A.** "Incorporating a Student-Designed Research Project into an Undergraduate Laboratory Classroom." 2nd Annual Uintah Basin Research Conference at Utah State University Regional Campus, Vernal, UT, United States, April 12, **2013**. *Oral presentation*.

Christiansen, M. A. "Reflections on Flip-Teaching in Undergraduate Organic Chemistry." 6th Annual Provost's Series on Instructional Excellence at Utah State University, Logan, UT, United States, February 26, **2013**. *Oral presentation*.¹

Crawford, C. L.*; **Christiansen, M. A.** "Incorporating a Student-Designed Research Project into an Undergraduate Laboratory Classroom." 7th Annual Utah Conference on Undergraduate Research (UCUR), Logan, UT, United States, February 22, **2013**. *Poster*.

Christiansen, M. A. "Flip-Teaching: Preliminary Findings of a Study with an Undergraduate Organic Chemistry Class." Abstracts of Papers, 23rd ACS Rocky Mountain Regional Meeting, Westin Westminster, CO, United States, October 17-20, **2012**. *Oral presentation*.

¹ See <https://www.youtube.com/watch?v=LHpnM17I-Xk>.

RESEARCH PRESENTATIONS (continued)

Crawford, C. L.*; **Christiansen, M. A.** "Less Cookbook and More Research: The Total Syntheses of JBIR-94 and JBIR-125, Student-Designed Research Projects Conducted in a Sophomore Organic Chemistry Lab." Abstracts of Papers, 23rd ACS Rocky Mountain Regional Meeting, Westin Westminster, CO, United States, October 17-20, **2012**. *Poster*.

Christiansen, M. A.; Andrus, M. B. "Synthesis of 12-HETE using asymmetric phase-transfer catalysis." Abstracts of Papers, 236th ACS National Meeting, Salt Lake City, UT, United States, April 22-26, **2009**. *Oral presentation*.

Binkley, M. A.; Christiansen, M. A.; Harper, K. H. Andrus, M. B. "Phase-transfer catalyzed asymmetric synthesis of S-naproxen." Abstracts of Papers, 236th ACS National Meeting, Salt Lake City, UT, United States, April 22-26, **2009**. *Poster*.

Nielson, J. R.; **Christiansen, M. A.**; Andrus, M. B. "Synthesis of kurasoin B analogs." Abstracts of Papers, 236th ACS National Meeting, Salt Lake City, UT, United States, April 22-26, **2009**. *Poster*.

Butler, A. W.; Calvert, A. L. **Christiansen, M. A.**; Andrus, M. B. "Phase-transfer catalyzed synthesis of the Soy isoflavanoid S-Equol." Abstracts of Papers, 236th ACS National Meeting, Salt Lake City, UT, United States, April 22-26, **2009**. *Poster*.

Christiansen, M. A.; Andrus, M. B. "Asymmetric acylimidazole alkylation under phase-transfer conditions." Abstracts of Papers, 235th ACS National Meeting, New Orleans, LA, United States, April 6-10, **2008**. *Oral presentation*.

EXTRAMURAL RESEARCH FUNDING

Agency	Project Title	Funding Type	Amount
Uintah Basin Impact Mitigation District	Pollutant Transport During Winter Ozone Episodes in the Uintah Basin*	Contract	\$39,042
National Science Foundation	Chiral Ru-Catalyzed Enyne Metathesis [‡]	Research Grant	\$350,932

*In association with the 2012-13 Uintah Basin Ozone Study (UBOS)

[‡]Not awarded

TEACHING EXPERIENCE

Courses Taught

Utah State University

Chemistry 1210	Principles of Chemistry I, 4 credits, 36 students, undergraduate majors and non-majors. Fall 2012. Taught annually.
Chemistry 1215	Chemical Principles Laboratory I, 1 credit, 15 students, undergraduate non-majors. Fall 2012. Taught annually.
Chemistry 1220	Principles of Chemistry II, 4 credits, 22 students, undergraduate majors and non-majors. Spring 2013. Taught annually.

Courses taught at Utah State University (continued)

Chemistry 1225	Chemical Principles Laboratory II, 1 credit, 10 students, undergraduate non-majors. Spring 2013. Taught annually.
Chemistry 2310	Organic Chemistry I, 4 credits, 7 students, undergraduate non-majors. Fall 2011. Taught every fall during odd-numbered years.
Chemistry 2315	Organic Chemistry Lab I, 1 credit, 6 students, undergraduate non-majors. Fall 2011. Taught every fall during odd-numbered years.
Chemistry 2320	Organic Chemistry II, 4 credits, 6 students, undergraduate non-majors. Spring 2012. Taught every spring during even-numbered years.
Chemistry 2325	Organic Chemistry Lab I, 1 credit, 5 students, undergraduate non-majors. Spring 2012. Taught every spring during even-numbered years.
Chemistry 3700	Introductory Biochemistry, 3 credits, 5 students, undergraduate non-majors. Spring 2013. Taught every spring during odd-numbered years.
Chemistry 3710	Introductory Biochemistry Lab, 1 credit, 3 students, undergraduate non-majors. Spring 2013. Taught every spring during odd-numbered years.

Colorado State University

Chemistry 245	Fundamentals of Organic Chemistry, 4 credits, 81 students, undergraduate non-majors. Spring 2011.
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Brigham Young University

Chemistry 107	TA, General Chemistry Lab, 1 credit, ca. 25 students, undergraduate majors and non-majors. Fall 2006.
Chemistry 353	TA, Organic Chemistry Lab (Non-Majors), 2 credits, ca. 25 students, undergraduate non-majors. Fall 2004 to Spring 2006 (4 terms)
Chemistry 351	TA, Organic Chemistry I, 3 credits, ca. 250 students, undergraduate non-majors. Fall 2004 to Spring 2006 (3 terms)
Chemistry 352	TA, Organic Chemistry II, 3 credits, ca. 250 students, undergraduate non-majors. Fall 2004 to Spring 2006 (3 terms)
Chemistry 353	Instructor, Organic Chemistry Lab (Non-Majors), 2 credits, ca. 50 students, undergraduate non-majors. Summer 2005 to Winter 2010 (5 terms)

Undergraduate Student Mentoring at USU

*2012 SURCO and 2012 URCO
award recipient

[†]Summer 2013 Uintah Basin
Research Institute Fellow

[‡]Summer 2013 Pollution Study
Fellow (Uintah Basin Impact
Mitigation District Funding)

Tanner Allen – 2013-present

*Cathy Crawford – 2012-present

Bradley Eric Funk – 2012-2013

Kolby Lance – 2012-2013

Miranda Liddell – 2012-2013

[†]Andrew Merrell – 2013-present

Chad Mangum – 2012-present

[‡]Trevor O'Neil – 2013-present

Students Trained at BYU and CSU

Chelsey Barrett (BYU) – 2010	Shawn Mikkelsen (BYU) – 2005-2007
Meisha Binkley (grad student, BYU) – 2008-2010	Jason Nielson (BYU) – 2008-2009
Aaron Butler (BYU) – 2008-2010	Nate Oswald (BYU) – 2010
Adam Calvert (BYU) – 2008-2009	Mike Lindsay (BYU) – 2010
Kaid Harper (BYU) – 2006-2008	Melissa M. (BYU) – 2008-2009
Amanda Hill (BYU) – 2008-2009	Kaylene W. (BYU) – 2008-2009
Sven Hurney (CSU) – 2011	

Online Chemistry Lectures (52 Total, a complete list is available on request)

<https://www.youtube.com/playlist?list=PLBwHfJmqJz5i86aUIHzY6q4kURaGNdoky>
(Chemistry Teaching)
https://www.youtube.com/playlist?list=PLBwHfJmqJz5jDtJzGhAwVc_naPWxmmL2S
(Free Biochemistry Lectures)
<https://www.youtube.com/playlist?list=PLBwHfJmqJz5ixX9VJV8GIulot9HvqIMLI>
(Free General Chemistry Videos for Intro Chemistry Students)
<https://www.youtube.com/playlist?list=PL5E10429EB8603340>
(Free Lectures for Organic Chemistry, Semester 2)
<http://www.youtube.com/playlist?list=PL0A17991C89EFBCF3>
(Free O-chem Lectures for MCAT, PCAT, DAT, and GRE prep)

UNIVERSITY SERVICE

Committees and Advising

Summer 2011 –	Co-chair and cofounder, USU Uintah Basin Summer Science Camp Committee, which organizes an annual summer camp to educate middle school students in science. ²
Spring 2013 –	Advising faculty member, USU Uintah Basin Chemistry Club (18 students, three club activities in Spring 2013 term)

Radio and TV Recruitment

9/15/2011	Joint interview on KVEL 920 radio to promote USU research and recruitment at USU
9/26/2011, 2/15/2012	Interviews on VTV to promote USU research and recruitment ³⁻⁴

USU Outreach/Education of K-12 Students

Chemistry Demonstrations and USU Building Tours for K-12 Students

10/7/2011, 10/27/2011, 1/26/2012, 3/29/2012, 10/25/2012, 1/24/2013, 4/3/2013, 4/10/2013, and 5/20/2013

² News stories on the summer camps can be found at http://www.ksl.com/?nid=960&sid=20662672&title=kids-learn-science-of-angry-birds-at-usu-camp&s_cid=queue-11 and <http://www.ksl.com/?nid=148&sid=25505471>.

³ <http://www.youtube.com/watch?v=u6vwQPqL-QQ&blend=21&lr=1&ob=5>

⁴ <http://www.youtube.com/watch?v=8L2rbyWn8Yc>

USU Outreach/Education of K-12 Students (continued)**High School Senior Recruitment Assemblies**

9/30/2011	Uintah High School
11/2/2011	Union High School
9/14/2012	Uintah High School

COMMUNITY SERVICE**Summer Camps**

5/30/2012 – 5/31/2012	Co-chair, co-organizer, and cofounder: first annual Uintah Basin Science Summer Camp for Middle School Students ¹
6/3/2013 – 6/6/2012	Co-chair, co-organizer, and cofounder: second annual Uintah Basin Science Summer Camp for Middle School Students ¹

Invited Community Lectures

9/9/2011	"Intro to Chemistry Lecture," UBATC Medical Terminology/Human Anatomy Class
12/15/2011	"Intro to Chemistry Lecture," UBATC Medical Terminology/Human Anatomy Class
3/14/2012	"The Importance of Math," welcome lecture for state math competitors
4/25/2012	"The Nature of Matter," hour-long chemistry class given to second-graders at Maeser Elementary
10/24/2012	"The Importance of Math," mini-lecture given to the Uintah High Math Club
11/26/2012	"The Importance of Math," hour-long lecture given to five different Vernal Junior High classes

Other Service

5/13/2012	Assistant, "Science Day" for second-graders at Maeser Elementary
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PROFESSIONAL REFERENCES

- Dr. Boyd Edwards
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- Prof. Robert M. Williams
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- Prof. Steven L. Castle
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