Curriculum Vitae

Charles E. Jakobsche, Ph.D.

Clark University, Carlson School of Chemistry & Biochemistry
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Born: Concord, MA, USA; 1982

Education

B.A. Williams College, Williamstown, MA (Chemistry, 2004)
- ***Highest departmental honors***
- Advisor: J. Hodge Markgraf
- Thesis: "A Library of Benzocanthinones"
- Summer research: Leiden University, The Netherlands (Organic Chemistry, 2002) (Advisor: Jacques van Boom)

Ph.D. Yale University, New Haven, CT (Organic Chemistry, 2009)
- ***Richard Wolfgang Prize*** for top dissertation in the Yale Chemistry Department
- Advisor: Scott J. Miller (Chemistry Department)
- Thesis: "Development and Analysis of Peptide-Based Catalysts for Selective Epoxidation and Glycosylation Reactions"
- Studied at Boston College (2004–2006) then Yale (2006–2009)

Professional Positions

Postdoctoral Fellow: Yale University, New Haven, CT (Chemical Biology, 2009–2012)
- ***Ruth Kirschstein Fellowship*** (National Cancer Institute)
- Leslie Warner Fellowship (Yale Cancer Center)
- Advisor: David A. Spiegel (Chemistry Department)
- Development of immune-redirecting small-molecule cancer therapeutics and evaluation of their effects in live cells

Assistant Professor: Clark University, Worcester, MA (Organic/Medicinal Chemistry, 2012–present)
- Carlson School of Chemistry & Biochemistry (2012–present)
- Interdepartmental Biochemistry & Molecular Biology Program Faculty (2013–present)
- ***Research Interests***: Organic synthesis, chemical biology, chemistry of medicine

Courses Taught at Clark University

Semester	Number	Course Name	Number of Students	Average Student Evaluation (out of 5)
Fall 2012	CHEM 132	Organic Chemistry II	8	4.6
Fall 2012	CHEM 132-Lab	Organic Chemistry II Lab	8	4.6 (with lecture)
Spring 2013	CHEM 131	Organic Chemistry I	24	4.7
Spring 2013	CHEM 131-Lab	Organic Chemistry I Lab	24	4.7 (with lecture)
Fall 2013	CHEM 132	Organic Chemistry II	22	4.8
Fall 2013	CHEM 132-Lab	Organic Chemistry II Lab	22	4.8 (with lecture)
Fall 2013	CHEM 131-Lab	Organic Chemistry I Lab (2 sections)	25+22	---
Spring 2014	CHEM 131	Organic Chemistry I	24	4.5
Spring 2014	BCMB 237/337	Chemistry & Biology of Medicine	19	4.1
Fall 2014	CHEM 131	Organic Chemistry I	55	4.5
Fall 2014	CHEM 132-Lab	Organic Chemistry II Lab	15	4.7
Spring 2015	BCMB 237/337	Chemistry & Biology of Medicine	19	4.6
Spring 2015	CHEM 132-Lab	Organic Chemistry II Lab (2 sections)	24+21	4.4
Fall 2015		*Sabbatical*		

- 100 and 200-level courses are for undergraduates. 300-level courses are for graduate students.
- CHEM = chemistry, BCMB = biochemistry and molecular biology
- For lecture courses, there are no TAs. The professor does all the grading and has regularly scheduled additional hours per week to meet with students. This time commitment is typical for Clark University.
- For lab courses, the professor teaches the pre-lab and oversees the in-lab time, but there is a TA to assist and to grade lab reports.

New Courses Created at Clark University

Spring 2014	BCMB 237/337	Chemistry & Biology of Medicine	(a graduate level course)

Research Students Mentored at Clark

Current Ph.D. Students (2)

Michael Reardon
Linshu Wang

Current Undergraduate Students (5)

Nicholas MacArthur (2016, CHEM, Honors)
Ashley Burke (2016, BCMB, Honors)
Danielle Augur (2016, CHEM)
Devon Fontaine (2017, CHEM)
Maria Solares-Bucaro (2017, BCMB)

Previous Undergraduate Students (Honors) (2)	Next Position
Blaine McCarthy (2015, CHEM, Highest Honors)	Ph.D. program in chemistry at U. Colorado, Boulder
Peter George Baumgartel (2015, CHEM, High Honors)	Ph.D. program in chemistry at Colorado State, Ft. Collins

Previous Undergraduate Students (Directed Study) (4)	Next Position
George Carlson (2014, CHEM major)	3/2 Engineering dual degree program at Columbia U.
Spencer Brightman (2014, BIOL major)	Biology department
Brooke Yasgur (2014, BCMB major)	Masters program in human nutrition at Columbia U.
William Connor Daube (2015, CHEM major)	Accepted to M.S. program at Tufts U.

Teaching Experience before Clark

Fall 2003 and Spring 2004	Chemistry Tutor, Williams College Math and Science Resource Center ·Freshman general and physical chemistry
Fall 2004	Teaching Assistant, Boston College with Professor Neil Wolfman ·Freshman general chemistry (Discussion section leader)
Fall 2006	Teaching Assistant, Wilbur Cross Public High School, New Haven, CT with Mr. Chris Willems ·Honors physical science (Volunteer classroom and laboratory assistant)
Spring 2007	Teaching Assistant, Yale University with Professor J. Michael McBride ·Honors freshman organic chemistry (Discussion section leader)
Fall 2007	Teaching Assistant, Yale University with Professor J. Michael McBride ·Honors freshman organic chemistry (Discussion section leader) ·***T. F. Cook Award*** for teaching assistant excellence
Spring 2008	Teaching Assistant, Yale University with Professor Frederick Ziegler ·Honors freshman organic chemistry (Discussion section leader)
Fall 2008	Teaching Fellow, Yale University with Professor David Spiegel ·Graduate-level mechanistic organic chemistry (Discussion section leader)

Publications

·In my field, the student authors are typically listed first in the order of their contributions, followed by any non-principal-investigator faculty, and finally the principal investigator.

*Principal investigator
@Graduate students from Clark University
%Undergraduate students from Clark University

Peer-Reviewed Research Articles from Work Done at Clark University

(11) "Using *N*-Nitroso-Dichloroacetamides to Conveniently Convert Non-Branched Primary Amines into Alcohols"
%N. S. MacArthur, @L. Wang, %B. G. McCarthy, *C. E. Jakobsche
Synth. Commun. **2015** - *Accepted*

(10) "Overcoming the Inherent Alkylation Selectivity of 2–3-trans-3–4-cis-Trisubstituted Cyclopentanones"
@M. B. Reardon, %G. W. Carlson, *C. E. Jakobsche
Synthesis **2014**, *46*, 387–393

Review Articles from Work Done at Clark University

(9) "Biochemical Effects of Meditation: A Literature Review"
%W. C. Daube, *C. E. Jakobsche
Scholarly Undergraduate Research Journal **2015**, *1*, 80–85

Peer-Reviewed Research Articles from Work Done as a Postdoctoral Researcher

(8) "Exploring Binding and Effector Functions of Natural Human Antibodies Using Synthetic Immunomodulators"
C. E. Jakobsche, C. G. Parker, R. N. Tao, M. D. Kolesnikova, E. F. Douglass, *D. A. Spiegel
ACS Chem. Biol. **2013**, *8*, 2484–2492
·Also see highlight: *ACS Chem. Biol.* **2013**, *8*, 2349

(7) "Reprogramming Urokinase into an Antibody-Recruiting Anticancer Agent"
C. E. Jakobsche, P. J. McEnaney, A. X. Zhang, *D. A. Spiegel
ACS Chem. Biol. **2012**, *7*, 316–321
·Also see spotlight: "Best of chemical biology 2012" *ACS Chem. Biol*. **2013**, *8*, 6
·Also see highlight: *ACS Chem. Biol.* **2012**, *7*, 246

Patents from Work Done as a Postdoctoral Researcher

(6) "Reprogramming Urokinase into an Antibody-Recruiting Anticancer Agent"
*D. A. Spiegel, C. E. Jakobsche
World Patent Application: WO 2013/070688-A1, May 16, 2013

Peer-Reviewed Research Articles from Work Done as a Graduate Student

(5) "$n \rightarrow \pi^*$ Interaction and $n)(\pi$ Pauli Repulsion Are Antagonistic for Protein Stability"
C. E. Jakobsche, A. Choudhary, S. J. Miller, *R. T. Raines
J. Am. Chem. Soc. **2010**, *132*, 6651–6653

(4) "Functional Analysis of an Aspartate-Based Epoxidation Catalyst with Amide-to-Alkene Peptidomimeic Catalyst Analogues"
C. E. Jakobsche, G. Peris, *S. J. Miller
Angew. Chem., Int. Ed. **2008**, *47*, 6707–6711
·Also see highlight: *Angew. Chem., Int. Ed.* **2008**, *47*, 3677
·Also see: *Synfacts*, **2008**, 1100

(3) "Selective Partial Reduction of Quinolines: Hydrosilation versus Transfer Hydrogenation"
A. Voutchkova, D. Gnanamgari, C. E. Jakobsche, C. Butler, S. J. Miller, J. Parr, *R. H. Crabtree
J. Organomet. Chem. **2008**, *693*, 1815–1821

(2) "Aspartate-Catalyzed Asymmetric Epoxidation Reactions"
G. Peris, C. E. Jakobsche, *S. J. Miller
J. Am. Chem. Soc. **2007**, *129*, 8710–8711
·Also see "Organo- and Biocatalysis Synfact of the Month:" *Synfacts*, **2007**, 983
·Also see highlight: *Angew. Chem., Int. Ed.* **2008**, *47*, 3677–3679

Peer-Reviewed Research Articles from Work Done as an Undergraduate

(1) "A Versatile Route to Benzocanthinones"
*J. H. Markgraf, A. D. Dowst, L. A. Hensley, C. E. Jakobsche, C. J. Kaltner, P. J. Webb, P. W. Zimmerman
Tetrahedron, **2005**, *61*, 9102–9110
·Also see: *Synfacts*, **2006**, 27

Academic Honors and Awards

2000	Top Chemistry Student: Concord–Carlisle Regional High School
2002	Summer Travel Fellowship: Williams College Department of Chemistry
2004	Class of 1960's Scholar: Williams College Department of Chemistry
2008	T. F. Cooke Award for Teaching Assistant Excellence: Yale University Department of Chemistry
2010	Richard Wolfgang Prize for Top Ph.D. Thesis: Yale University Department of Chemistry
2010–2011	Leslie Warner Postdoctoral Fellowship: Yale University Cancer Center
2011	Postdoctoral Scholar Travel Fund Award: Yale University Office for Postdoctoral Affairs
2011–2012	Ruth L. Kirschstein Postdoctoral Fellowship: National Cancer Institute

Invited Lectures

2008	Yale University (CT) Department of Chemistry: Bristol–Myers–Squibb Symposium
2008	Yale University (CT) Center for Genomics and Proteomics: Joint Seminar Series
2011	Clark University (MA) Department of Chemistry
2012	Rowan University (NJ) Department of Chemistry
2012	Providence College (RI) Department of Chemistry
2013	Bridgewater State University (MA) Department of Chemistry
2013	Drug Discovery & Therapy World Congress (Boston) Hot Topics in Medicinal Chemistry Session
2014	Merrimack College (MA) Department of Chemistry

Additional Research Presentations

2013	Gordon Research Conference in Bioorganic Chemistry (Andover, NH) (poster)
2015	American Chemical Society's Northeast Regional Meeting (Ithaca, NY) (organic chem. session talk)

Funding Received

From Competitive Internal Sources at Clark

2014 "Chemical synthesis of novel anti-cancer medicines"
Faculty-Sponsored LEEP Project, Clark University LEEP Center
Role: PI, Status: Funded, Total Funds: $6,000

2015 "Developing new molecules to fight drug-resistant bacteria"
Faculty-Sponsored LEEP Project, Clark University LEEP Center
Role: PI, Status: Funded, Total Funds: $6,000

While a Postdoctoral Researcher

2010–2011 "A method to direct the human immune system against metastatic cancer cells"
Leslie H. Warner Postdoctoral Fellowship, Yale University Cancer Center
Role: PI, Status: Funded, Total Funds: $42,000 (1 year)

2011–2012 "A method to direct the human immune system against metastatic cancer cells"
Ruth L. Kirschstein Postdoctoral Fellowship, National Institute of Health (NCI)
Role: PI, Status: Funded, Total Funds: $150,234 (3 years)

Service on Clark University Committees

2013–2016	Clark University Library Committee: Natural Sciences faculty representative, 3-year term ·***Committee Chair***: 2014–15 ·(Sabbatical fall 2015)
2014–2015	Clark University Self Study Preparation Committee: Standards committee #5 member ·To prepare for Clark's 2015 Reaccreditation

Service as a Reviewer

For Journals

Bioorganic & Medicinal Chemistry
European Journal of Organic Chemistry
Journal of Chemical Education
Journal of the American Chemical Society
Journal of Bioactive and Compatible Polymers
Tetrahedron

For Grant Applications

Petroleum Research Fund: American Chemical Society

Professional Memberships

2006–Present American Chemical Society: Member

Extracurricular Awards

2001 All-America: National Collegiate Athletic Association Division III Track and Field (4 x 400 meters)
2004 All-America: National Collegiate Athletic Association Division III Track and Field (4 x 100 meters)