

Ron D. Briggs, Ph.D.

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EDUCATION

Ph.D., Physical Chemistry (emphasis in Analytical Spectroscopy), 2004

University of California, San Diego and San Diego State University - San Diego, CA

Dissertation Title: "High-Resolution Nonlinear Laser Wave-Mixing Spectroscopy for Gas-Phase Environmental and Atmospheric Studies"

Advisor: Professor William G. Tong

M.A., Chemistry, 1999

San Diego State University

Advisor: Professor William G. Tong

B.S., Chemistry, 1994

University of California, San Diego

EXPERIENCE

2006-Present

**Coordinator of General Chemistry
Arizona State University, Tempe, AZ**

- Managed general chemistry program at the largest university in the nation
- Coordinated over 26,000 hours of combined student time per week in lecture, lab, and recitation sections (CHM 101, 113, 114, 116)
- Hired, trained and/or supervised ten faculty members and 100+ teaching assistants per semester
- Assigned course teaching assistants to ~500 class sections each semester
- Supervised/mentored chemical stockroom, demonstration room, Learning Resource Center (LRC) and Supplemental Instruction (SI) personnel
- Pioneered implementation of a \$650,000 Learner-Centered Education (LCE) course redesign initiative with General Chemistry faculty at three ASU campuses
- Planned and designed the new Chemistry Collaborative Learning Center (CCLC) in coordination with faculty and staff at multiple ASU offices
- Built complete class schedules and coordinated enrollment for all 100-level courses
- Maintained grade records for over 5,000 students per year
- Submitted textbook orders and organized collaborative efforts with publishers and vendors
- Served as point of contact for outreach and publicizing General Chemistry Program

2004-Present

**Principal Lecturer of Chemistry (Senior Lecturer 2007-2012, Lecturer 2004-2007)
Arizona State University, Tempe, AZ**

- Designed curriculum, coordinated and supervised inquiry-based laboratory exercises in Introductory, General, Physical, and Organic Chemistry (CHM 101, 113, 114, 235, 343, 348)
- Mentored course teaching assistants
- Coordinated over 2,000 hours of combined student time per week
- Regularly received among the highest student evaluations in the Department
- Served on several departmental committees: Undergraduate Programs Committee, Committee on Teaching Assistants (Chair), Learning Resource Center Committee (Chair), General Chemistry Instructional Programs Committee (Chair), Committee on School Planning, and multiple faculty/staff hiring committees

2003-2012

**Analytical Chemistry Consultant/Expert Witness
San Diego, CA**

- Analyzed GF-AAS, ICP-AES, and ICP-MS data for a prominent law firm
- Worked under strict deadlines to deliver professional technical reports to a general audience
- Provided expert testimony at deposition and in Federal Court

- 1996-2003 **Doctoral Candidate, Graduate Research Assistant**
Dr. William Tong Laser Spectroscopy Group at San Diego State University
- Developed and managed individual and joint research projects in both gas and liquid phases using novel technique of degenerate four-wave mixing (D4WM) spectroscopy
 - Performed experiments that coupled D4WM with a variety of different atomizers including the graphite furnace, cathode discharge, and inductively coupled plasma
 - Measured and reported the lowest current detection limits (parts-per-quadrillion level) for any technique of select atomic analytes
- 1999-2002 **Chemistry Instructor**
Summer Bridge, Health Careers Opportunity Program (HCOP), Upward Bound and Upward Bound Math/Science Programs
- Designed curriculum and research assignments for federally funded summer programs that provided experience to underrepresented and disadvantaged high school and college students from all over the world
 - Coordinated over 70 hours of student time per week
 - Responded to unique student needs from a variety of different ethnic, social, and academic backgrounds
 - Assisted students in the development of several unique research projects and the creation of scientific web pages for publication on the campus web server
 - Supervised and evaluated a course teaching assistant
 - Received excellent instructional reviews from students and program administrators

PROFESSIONAL DEVELOPMENT & WORKSHOPS (*Selected*)

- 2011-2017 **MasteringChemistry Online Recitation Activity Authoring**
(In collaboration with Pearson Arts & Sciences and ASU faculty), AY 2011-2012 and 2017-2018
- Authored new inquiry-based activities for use in general chemistry recitations
 - Collaborated with publisher and other faculty to convert printed activities into online format
 - Increased efficiency of Gen CHM course delivery through reduced grading overhead and shared resources
- 2014 **23rd Biennial Conference on Chemical Education (BCCE)**
Grand Valley, MI, August 3-7, 2014
- Participated in workshops and seminars on chemical education efforts in K-12, university courses
 - Co-authored three presentations on instructional practices at ASU
- 2011 **ALEKS Online Assessment Symposium (by Invitation)**
Washington, D.C., April 8, 2011
- Discussed issues in first year chemical education
 - Learned about Knowledge Space Theory and successful implementation strategies
- 2011 **McGraw Hill General Chemistry Symposium (by Invitation)**
Dana Point, CA, February 24-27, 2011
- Collaborated, shared, and exchanged ideas on best practices and development of course solutions
 - Explored teaching trends and digital learning tools in general chemistry with other chemical educators from around the nation in a 16-hour workshop format
- 2010 **21st Biennial Conference on Chemical Education (BCCE)**
Denton, TX, August 1-5, 2010
- Participated in workshops and seminars on recent advances in chemical education
 - Co-authored three presentations on collaborative learning and lab/recitation practices at ASU
- 2009 **Arizona Board of Regents (ABOR) /Learner Centered Education (LCE) Redesign Workshop**
Phoenix, AZ, August 13, 2009
- Discussed final outcomes of course redesign efforts at ASU, U of A, and NAU
 - Formulated recommendations to the Academic Affairs Committee concerning next steps with the LCE Program
- 2008 **Managing Change: Creating Effective Campus Learning Spaces**
Herman Miller Webinar, November 13, 2008
- Discovered new methods for aligning institutional strategy with learning space strategy
 - Discussed approaches for design and innovation projects to support pedagogical goals
 - Assessed effective strategies for documenting student learning through key metrics

- 2008 **Collegiate Learning Assessment (CLA) in the Classroom Academy
Arizona State University, November 6-7, 2008**
- Learned about rubric-based assessment
 - Brainstormed strategies for using performance-based assessment in courses
 - Planned administration and scoring of a disclosed CLA Performance Task, as well as how to use results to diagnose student work
 - Developed performance tasks to embed course content or concepts
- 2006-2007 **Arizona Board of Regents (ABOR)/ National Center for Academic Transformation (NCAT) Workshops
in Curriculum Redesign (with Janet Bond-Robinson, Pam Marks, Rich Bauer, Holly Huffman), Arizona
State University (Tempe and West campuses)**
- Learned effective course redesign strategies based on previous implementations at other universities across the nation
 - Participated in peer discussions with multidisciplinary faculty at Arizona State University, University of Arizona, and Northern Arizona University on optimizing the delivery of the general chemistry program while supporting higher enrollment and improving TA mentoring
 - Awarded the highest redesign grant of all proposals (\$100,000)
- 2006 **American Chemical Society Leaders Conference
Baltimore, MD, January 27-29, 2006**
- Developed management skills in the areas of goal setting, budget planning, meeting planning, volunteer recruitment, and communication
 - Networked with other ACS executive board members from all over the nation
- 2005 **Process Oriented Guided Inquiry Learning (POGIL) Teaching Workshop
Arizona State University, February 11, 2005**
- Discussed recent developments in cognitive learning theory
 - Engaged in chemistry active-learning exercises with peers from around the nation
 - Introduced methods of instructor-centered collaborative learning classroom approaches in concert with recent advances in chemical education research

PROFESSIONAL SERVICE & OUTREACH ACTIVITIES (*Selected*)

- 2005-2016 **Grand Awards Judge, Analytical Chemistry Division
Intel International Science & Engineering Fair (ISEF), Phoenix, AZ, 2005, 2013, 2016**
- Interviewed students and reviewed independent research projects for scholarships and awards in excess of \$3 million at the largest international science project competition in the world
 - Participated in caucusing sessions and active debate among nearly 1,500 professionals from academia, business, government and industry
 - Encouraged student research and fostered scientific investigation through one-on-one discussion with promising young scientists
- 2013 **Counterpart Exchange with Sichuan University
Arizona State University, January 2013**
- Hosted professor from Sichuan University in China
 - Discussed teaching strategies and classroom design of ASU General Chemistry Program
- 2012-2014 **School of Life Sciences (SOLS) and Department of Physics Active Learning Classroom Consultant
Arizona State University**
- Acted as consultant in design of new multimedia-enhanced classrooms for life sciences and physics courses
 - Facilitated discussions between SOLS and General Chemistry Faculty and textbook publishers
- 2010 **Teaching Innovations in General Chemistry at Arizona State University (Workshop)
Advanced Chemistry, Nanotechnology, Research Management and Innovations (ACNRMI) Program,
Arizona State University, December 6 2010**
- Detailed pedagogical advances in undergraduate chemistry at ASU
 - Led workshop for 66 international scientists on learning theory, collaborative exercises, online instruction, and effective chemical demonstration in collaboration with other ASU faculty and staff
- 2010 **Senior Scholars Luncheon
Arizona State University, February 15, 2010**
- Met with prospective students and their families at an annual recruitment event for the University

- 2008-present **Faculty Administrator**
Supplemental Instruction (SI) Program, Arizona State University
- Worked with ASU faculty, staff, and administration to bring proven peer-led tutoring opportunity to first year general chemistry (CHM 101, 113) students
 - Collaborated on administrative plans with program directors
 - Significantly increased SI participation among general chemistry students
 - Mentored student SI leaders
- 2008 **Oral Presentation Judge**
2008 Symposium on Research in Interdisciplinary Science & Engineering (RISE), October 5, 2008
- Judged oral presentations of graduate student research in Chemistry
- 2007 **Chair**
American Chemical Society (ACS), Central Arizona Section
- Coordinated outreach programs, general and technical seminars, and collaborative efforts for over 840 ACS members in the Central Arizona region
 - Planned local section meetings
 - Donated hundreds of college textbooks to local schools
 - Partnered with local industry to sponsor career shadowing events for local schools
 - Designed and maintained the local section web site
- 2004-present **Honors Project Advising**
Arizona State University, Department of Chemistry
- Mentored undergraduate students in support of the Barrett Honors College at ASU
 - Encouraged participation in peer learning groups for lower division chemistry courses
- 2002 **Undergraduate Research Symposium Judge**
San Diego State University
- Judged undergraduate research posters on content, style, and oral defense for cash awards
- 1999-2001 **Chemistry Lab Event Captain**
San Diego Regional Science Olympiad
- Created new written and experimental exams for student competition in the chemical sciences
 - Judged laboratory and problem solving skills of almost 100 students for regional awards and advancement to competition at the state level
 - Recruited and supervised volunteers for the development of additional chemistry events
- 1997-1998 **University Science Evaluator, Chemistry Support Specialist**
San Diego PISCES Project
- Evaluated new kit-based learning projects for use in K-12 student curriculum
 - Provided email support in chemistry, physics, and general science to facilitate the incorporation of material into daily lessons by educators

AWARDS & HONORS

- Distinction of Merit and Scholastic Opportunity (DMSO) teaching award, student chosen (2015)
- Society for College and Urban Planning Institutional Innovation and Integration Award Nominee (2010)
- ASU Centennial Professorship Award Nominee (2009/2010)
- ASU Centennial Professorship Award Nominee (2007/2008)
- College of Liberal Arts and Sciences (CLAS) Innovation in Teaching Award Nominee (2009/2010)
- College of Liberal Arts and Sciences (CLAS) Dean's Distinguished Teaching Award Recipient (2006/2007)
- College of Liberal Arts and Sciences (CLAS) Dean's Distinguished Teaching Award Nominee (2005/2006, 2006/2007, 2007-2008, 2009/2010, 2012/2013, 2015/2016)
- Quality rating of 4.6/5.0 on RateMyProfessors.com with 275+ ratings
- Designated "Honors Disciplinary Faculty" for continued support of the Barrett Honors College (2006-present)
- "Favorite Teacher," College Affair Magazine (2006)
- "Most Outstanding Teaching Assistant," San Diego State University (1999)

GRANTS

- Bond-Robinson, Janet, Bauer II, Richard C, Briggs, Ron D., Huffman, Holly Ann, Marks, Pamela Sue. Increasing Access, Retention, and Excellence in General Chemistry at all ASU Campuses. AZ BOARD OF REGENTS (7/15/2007 - 6/30/2009). Award Total: \$100,000 (plus additional funding from vendors).
- Briggs, Ron, Seerley, Shelly, Windman, Todd: MasteringChemistry Online Recitation Activity Authoring in collaboration with Pearson Arts & Sciences (2011-2012).
- Briggs, Ron, Sendler, Stacy, Seerley, Shelly, Smith, Rebeca: MasteringChemistry Recitation Activity Revision in collaboration with Pearson Arts & Sciences (2017-2018).
- Briggs, Ron, Jones, Anne, pilot grant for new Discussion Sessions in General Chemistry from College of Liberal Arts & Sciences (CLAS)

PRESENTATIONS (*Most Recent*)

1. S. Sendler, R.D. Briggs, B. Smith, "Online, Collaborative Kit-Based Activities for General Chemistry Recitations," 2016 Biennial Conference on Chemical Education (BCCE), Greeley, CO, July 31-August 4, 2016.
2. S. Sendler, B. Smith, R.D. Briggs, "Writing General Chemistry Lab Reports Based On Peer Edits and Guided Inquiry," 2016 Biennial Conference on Chemical Education (BCCE), Greeley, CO, July 31-August 4, 2016.
3. R.D. Briggs, P. Marks, S. Hauck, "Evolution of the Chemistry Collaborative Learning Center (CCLC) at Arizona State University: Lessons learned after 6 years and 35,000 students," 23rd Biennial Conference on Chemical Education (BCCE), Grand Valley, MI, August 3-7, 2014.
4. B. Smith, P. Marks, R.D. Briggs, and G. Cabirac, "Writing Lab Reports One Section at a Time," 23rd Biennial Conference on Chemical Education (BCCE), Grand Valley, MI, August 3-7, 2014.
5. P. Marks, R.D. Briggs, R. Bauer, J. Birk, A. Scruggs, "CHM 101 at Arizona State University: Past, Present, and Future," 23rd Biennial Conference on Chemical Education (BCCE), Grand Valley, MI, August 3-7, 2014.
6. R. D. Briggs, "Teaching Innovations in General Chemistry at Arizona State University (ASU)," Advanced Chemistry, Nanotechnology, Research Management and Innovations (ACNRMI) Program, Arizona State University, December 6 2010
7. R. D. Briggs, P. Marks, and G. Cabirac, "Design and Implementation of the new Chemistry Collaborative Learning Center (CCLC) at Arizona State University (ASU)," 21st Biennial Conference on Chemical Education (BCCE), Denton, TX, August 1-5, 2010.
8. G. Cabirac, P. Marks, and R. D. Briggs, "Challenges Associated with Guided Inquiry Laboratories: Strategies for Improving Effectiveness of Teaching Assistant Led Labs," 21st Biennial Conference on Chemical Education (BCCE), Denton, TX, August 1-5, 2010.
9. P. Marks, R. D. Briggs, and G. Cabirac, "ASU's Chemistry Collaborative Learning Center (CCLC): An Effective Learning Environment for over 5,500 Students Per Year," 21st Biennial Conference on Chemical Education (BCCE), Denton, TX, August 1-5, 2010.
10. R. D. Briggs, "Supporting Active Learning Environments in Large-Enrollment General Chemistry Courses," University of California, Riverside, July 27, 2010 (Invited Talk).

PUBLICATION/TEXTBOOK REVIEWS

1. Brown, LeMay, Bursten, Murphy, Woodward, "Chemistry The Central Science, 13th Ed.," Pearson Prentice Hall, 2013
2. Brown, LeMay, Bursten, Murphy, Woodward, "Chemistry The Central Science, 12th Ed.," Pearson Prentice Hall, 2012
3. Silberberg, Martin, "Chemistry: The Molecular Nature of Matter and Change, 6th Ed.," McGraw Hill, 2012
4. Zumdahl, Zumdahl, "Chemistry, 9th Ed.," Brooks Cole, 2011
5. MasteringChemistry Online Multimedia Tutorial Question Review, Pearson Prentice Hall, 2010-2014
6. Gilbert, Kirss, Foster, Davies, "Chemistry, 3rd Ed.," W.W. Norton & Co., 2010
7. General Chemistry Text (untitled, in preparation), John Wiley & Sons, 2009
8. General Chemistry Text (untitled, in preparation), Cengage, 2009
9. CATALYST Online Homework/Learning System, John Wiley & Sons, 2008
10. Burge, J, "General Chemistry, 1st Ed.," McGraw Hill, 2008
11. Halpern, A., McBane, G., "Experimental Physical Chemistry, 3rd Ed.," W.H. Freeman & Co., 2006