SUSAN A. KIRCH, PH.D.
Associate Professor

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HIGHER EDUCATION

1996 **Ph.D.** **Harvard University**, Cambridge, MA; Cell and Developmental Biology

1989 **B.A.** **Mount Holyoke College**, South Hadley, MA; Biochemistry, *cum laude*

PROFESSIONAL EXPERIENCE: FULL-TIME POSITIONS HELD

2007-present **Associate Professor**, Department of Teaching and Learning; New York University

2008-present **Associate Professor**, Department of Biological Sciences; New York University (affiliated appointment in process)

2005-2007 **Assistant Professor**, Urban Education; The Graduate Center of the City University of New York

2003-2007 **Assistant Professor**, Early and Elementary Childhood Science Education; Queens College of the City University of New York

2001-2003 **Assistant Professor,** Dual Appointment in Departments of Biological Sciences and Teacher Education; Wright State University, Dayton, OH

1997-2001 **Research Associate**, UC, San Francisco; Developmental Neurobiology
National Institutes of Health Fellowship (1997-2000)
Howard Hughes Medical Institute Fellow (2000-2001)

1996-1997 **Research Associate**, Harvard University, Cell and Developmental Biology

SCHOLARSHIP

Books (under contract)

Kirch, S.A. and Amoroso, M.A. *Teaching and learning science with young children.* (~120 pages). Rotterdam: Sense Publishers.

Primary audience for the book: This volume should serve as a valuable resource for *science teacher educators* who want to introduce new teachers to classroom discourse and engage them in the practice of analyzing social transactions as a way to expand their professional knowledge base for productive interactions with students. It will also be useful for *early childhood and elementary teachers* (both generalists and science specialists) who want to further develop their own practice and understandings of classroom interactions and discussions with children, and for *education leaders* (principals, supervisors) who are considering new and innovative ways to work with their faculty and staff to evaluate early childhood and elementary school science program activities. Finally, *parents* will find the text helpful in placing elementary science education in a historical context and in providing information necessary to support teachers that want to foster authentic science activity in their classrooms. Although the content of this book will focus on learning science, it will be written in a clear and straightforward style that will be accessible to readers regardless of their orientation.

Journal Articles

Kirch, S.A. and Siry, C. (2010) "Maybe the algae was from the filter": 'Maybe' and similar modifiers as mediational tools and indicators of uncertainty and possibility in children's science talk. *Research in Science Education,* Online First (http://www.springerlink.com/content/d8148172447x5287/)

Bargerhuff, M.E., Cowan, H. and **Kirch, S.A.** (2010). Working toward equitable opportunities for science students with disabilities: Using professional development and technology. *Disability & Rehabilitation: Assistive Technology*, *5(*2): 125-135.

Kirch, S.A. (2010). Identifying and resolving uncertainty as a cultural tool in science: A comparative analysis of scientists and elementary science students at work. *Science Education*, 94, 308-335.

Milne, C.E., **Kirch, S.A.,** Basu, S.J., Leou, M., Fraser Abder, P. (2008). Understanding conceptual change: connecting and questioning, *Cultural Studies of Science Education*, *3*(2), 417-434.

Kirch, S.A. (2007). Re/production of science process skills and a scientific ethos in an early childhood classroom. *Cultural Studies of Science Education, 2*(4), 785-815.

Kirch, S.A. (2007). Skepticism and open-mindedness for learning, teaching and criticality in science. *Cultural Studies of Science Education, 2*(4), 841-845.

Kirch, S.A. (2007). Considering authenticity criteria for studying cultural transitions by uncovering cover stories. *Cultural Studies of Science Education*, *2*(1), 254-258.

Kirch, S.A., Bargerhuff, M., Turner, H., Wheatly, M. (2007). Reflections of educators in pursuit of inclusive science classrooms. *Journal of Science Teacher Education, 18*(4), 663-692.

Kirch, S.A., Bargerhuff, M., Turner, H., Wheatly, M. (2005). Inclusive science education: Classroom teacher and science educator experiences in class workshops. *School Science and Mathematics*, *105*(4), 175-197.

Bargerhuff, M., **Kirch, S.A**., Wheatly, M. (2004). Collaborating with CLASS: Creating laboratory access for science students with disabilities. *Electronic Journal of Science Education*, 9(2).

Zallen, J.A., **Kirch, S.A.**, Bargmann, C.I. (1999). Genes required for axon pathfinding and extension in the *C. elegans* nerve ring. *Development, 126*(16), 3679-3692.

Kirch, S.A., Rathbun, G.A., Oettinger, M.A. (1998). Dual role for RAG2 in V(D)J recombination: catalysis and regulation of ordered Ig gene assembly. *European Molecular Biology Organization (EMBO) Journal*, *17*(16), 4881-4886.

Kirch, S.A., Sudarsanam, P., Oettinger, M.A. (1996). Regions of RAG1 protein critical for V(D)J recombination. *European Journal of Immunology, 26*(4), 886-891.

Liu, Z., **Kirch, S.A.**, Ambros, V.A. (1995). The *Caenorhabditis elegans* heterochronic gene pathway controls stage-specific transcription of collagen genes. *Development, 121*(8), 2471-2478.

Cuomo, C.A., **Kirch, S.A.**, Gyuris, J., Brent, R., Oettinger, M.A. (1994). Rch1, a protein that specifically interacts with the RAG-1 recombination-activating protein. *Proceedings of the National Academy of Science, 91*(13), 6156-60.

Burke, D.H., Raubeson, L.A., Alberti, M., Hearst, J.E., Jordan, E.T., **Kirch, S.A**., Valinski, A.E.C., Conant, D.S., and Stein, D.B. (1993). The chlL(frxC) gene: phylogenetic distribution in vascular plants and DNA sequence from Polystichum acrostichoides (Pteridophyta) and Synechococcus sp. 7002 (Cyanobacteria). *Plant Systematics and Evolution, 187*(1-4), 89-102.

Hsu T., Gogos, J.A., **Kirch, S.A.**, Kafatos, F.C. (1992). Multiple zinc finger forms resulting from developmentally regulated alternative splicing of a transcription factor gene. *Science, 257*(5078), 1946-50.

Stein, D.B., Conant, D.S., Ahearn, M.E., Jordan, E.T., **Kirch, S.A.**, Hasebe, M., Iwatsuki K., Tan, M.K., Thomson, J.A. (1992). Structural rearrangements of the chloroplast genome provide an important phylogenetic link in ferns. *Proceedings of the National Academy of Sciences, 89*(5): 1856-60.

Chapters in Books/Anthologies

Kirch, S.A. (in press). Understanding scientific uncertainty as a teaching and learning goal. In B. Fraser, C. McRobbie, and K. Tobin (Eds.) *Second International Handbook of Science Education* (~5,000 words). Boston: Kluwer Academic Publishers.

Kirch, S.A. and Martin, S. (2010). Taking women students seriously: Employing inclusive approaches to teacher education in primary science. In K. Scantlebury, J. Butler Kahle, S. Martin, and S.-K. LaVan (Eds.) *Re-visioning Science Education from Feminist Perspectives: Choices, Challenges, and Careers* (~15 pages). Rotterdam: Sense Publishers.

Kirch, S.A. and Hunter, M. (2007). Campaign for fiscal equity: The journey toward school funding reform in New York State and beyond. In A. Salz & H. Johnson (Eds.) *What is authentic educational reform? Pushing against the compassionate conservative agenda*, pp. 135-154. New York: Lawrence Erlbaum Publishers.

Amoroso, M. and **Kirch, S.A.** (2006). Get rocks in your head! In K. Tobin (Ed.) *Science Education: A Handbook*, pp. 447-452. Westport, CT: Greenwood Publishing.

Kirch, S.A. and Amoroso, M. (2006). A matter of timing: Learning about the impact of environmental changes on animal migration. In K. Tobin (Ed.) *Science Education: A Handbook,* pp. 439-446. Westport, CT: Greenwood Publishing.

GRANTS (INTRAMURAL AND EXTRAMURAL)

Extramural - Funded

- **National Science Foundation** – Discovery Research (K-12) #0918533
  Title: The Scientific Thinker Project: A study of teaching and learning concepts of evidence and nature of scientific evidence in elementary school
  Principal Investigator (Kirch)
  Co-Principal Investigators: Drs. C. Milne (NYU) and A. Stetsenko (CUNY-GC)
  ~$450,000
  2 years, 2009-2011
-
- **National Science Foundation** HRD-RES on Gender in Science and Engineering
  Title: Sisters in Science Dissemination and Outreach Project
  Co-Principal Investigator with Drs. P. Hammrich and M. Myers
  $200,000
  2 years, 2004-2006

- **National Science Foundation –** Materials Research Science and Engineering Center
  Title: NYU MRSEC: Semantophoretic Assemblies
  NYU Directors: Drs. D. Pine and M. Ward
  Senior Investigator and K-12 Education Outreach Advisor (Kirch) in collaboration with Drs. A. Adler and D. Szybinski
  $11.2 million
  6 years, 2008-2014

Intramural - Funded

NYU

- **University Research Challenge Fund**
  Title: Teaching and Learning the Nature of Scientific Evidence in Elementary Schools
  Principal Investigator
  $8,000
  1 year, 2008-2009

- **Steinhardt IDEA Grant**
  Title: Teaching and Learning the Nature of Scientific Evidence in Elementary Schools
  Principal Investigator
  $4,000
  1 year, 2008-2009

CUNY

- **Raphell Sims Lakowitz Memorial Foundation, Private foundation**
  Title: Raphell's Scientist in the Classroom/Scientist in the Field
  Awarded to improve elementary science education at Queens College School for Math, Science, and Technology
  Principal Investigator
  $25,000 endowment to QC - Elementary and Early Childhood Education Department

- **Professional Staff Congress 38, The City University of New York**
  Title: Talking science with young children learning about science through inquiry
  Principal Investigator
  $5,970
  1 year, 2007-2008

- **Research Enhancement Fund, Queens College/CUNY**
  Title: Learning how to teach science through coteaching: A reciprocal professional development partnership
  Co-Principal Investigator with Dr. S. Martin
  $10,000
  10 months, 1/2007-10/2007

- **Center for the Improvement of Education, Queens College/CUNY**
  Title: Digital expression: Enhancing student tools for expressing science learning in elementary school
  Principal Investigator
  $8,000 (equipment; 2006)
  Awarded to improve elementary science education at Queens College School for Math, Science, and Technology and teacher education at Queens College.

- **Professional Staff Congress 35, The City University of New York**
  Title: Influence of scientific literacy on concept formation
  Principal Investigator
  $4,325

1 year, 2004-2005

HONORS, AWARDS, AND SCIENTIFIC RESEARCH

City University of New York - Academy for the Humanities

Nomination: Feliks Gross Endowment Award for Outstanding Research by Junior Faculty
Winter, 2006

University of California, San Francisco-School of Medicine

National Institutes of Health – NRSA #F32-NS10459 (1997-1999) $54,120
National Institutes of Health – NRSA #F32-DC00428 (1999-2000) $36,700
Postdoctoral Research (1997-2001): Molecular mechanisms of axon guidance in *C. elegans*.

Harvard University

Distinction in Teaching Award: Center for Teaching and Learning, 1990
Doctoral Research (1991-1997): Immune system development: a functional analysis of RAG1 and RAG2.

Harvard University

Research Assistant. 1990-1991
Advisor: Victor A. Ambros, Ph.D. (thesis work until his departure to Dartmouth College)
Research: Analyzed developmental expression pattern of the heterochronic gene *lin-29*.

Mount Holyoke College

Sigma Xi Scientific Research Society induction. Member since 1989.
Undergraduate Thesis Advisor: Diana Stein, Ph.D. 1988-1989
Research: "The relationship of three Asiatic *Polysticums* to other polystichoid ferns as determined by chloroplast DNA comparisons."

Woods Hole Oceanographic Institution

Summer Research Fellowship Award. 1988
Sponsor: Douglas A. Prasher, Ph.D.
Research: Attempted to express green fluorescent protein (GFP) in *E. coli*.

National Institutes of Health, NIDDK

Volunteer Summer Internship. 1987
Sponsor: Eric Ackerman, Ph.D.
Research: Tested the ability of *Xenopus laevis* oocytes to repair psoralen-induced DNA damage

PROFESSIONAL EXPERIENCE: ADDITIONAL APPOINTMENTS

2007-2009	**Adjunct Professor**, Urban Education; The Graduate Center of the City University of New York (for purposes of doctoral student advisement)
2006-2007	**Senior Research Associate,** Equity Studies Research Center; Division of Education Queens College of the City University of New York

2006 **Interim Associate Supervisor**, Science and Mathematics Education Centre (SMEC), Curtin University of Technology, Perth, Australia

PROFESSIONAL EXPERIENCE: ADDITIONAL ACTIVITIES

2005-present **Doctoral Dissertation Advisor,** New York University (2007-present) and The Graduate Center of the City University of New York (2005-2009)

2007-present **Doctoral Dissertation External Reader,** New York University

Spring 2006 **Consultant,** Chappaqua Central School District – Curriculum Planning (Science Grades 5-8)

2005 **Co-Director**, Fostering Women's Success in Science Conference. Sponsored by National Science Foundation, Queens College, and Equity Studies Research Center. Flushing, NY.

2005 **Faculty Fellow,** CUNY Faculty Fellowship Publication Program (competitive, CUNY-wide program)

2004-2005 **Chair**, AERA-Special Interest Group: Education and Student Development in Cities.

2004 **Faculty Scholar**, Hunter College Gender Equity Project: Science Faculty Seminar (competitive, CUNY-wide program)

2002 **Faculty Representative,** Ohio Program Reviewer Training for the National Science Teachers Association (NSTA)

2001-2004 **Consultant,** Creating Laboratory Access for Science Students with disabilities project (CLASS), Wright State University; Dayton, OH.

1999-2001 **Action Research Team Member**, Triad Alliance for Equitable Teaching, Collaborative Inquiry Group. Science and Health Education Partnership, University of California, San Francisco, CA.

1998-2001 **Scientist Partner.** Triad Alliance for Equitable Teaching. Science and Health education Partnership, University of California, San Francisco, CA.

1999 **Instructor.** City Science Summer Institute for Beginning Teachers. Science and Health Education Partnership, University of California, San Francisco, CA.

PROFESSIONAL EXPERIENCE: ADDITIONAL EDUCATION

2008 **Course Attendee,** AERA Mini-Course "An Introductory Primer/Review of Multivariate Statistics"

2004	**Course Attendee,** AERA Mini-Course "Becoming Ethnographers: Traditional and Alternative forms of Ethnographic Data Collection, Analysis, and Representation"
2004	**Course Attendee,** AERA Mini-Course 'Inquiry-based Practitioner Action Research: Practical Research to Improve Practice"
2004	**Course Attendee,** AERA Mini-course "A Theory and Method for Anti-Hegemonic Research in Education: Linking Counterstories, Historicism, and Ethnography"
2004	**Course Attendee,** AERA Mini-Course "The Qualitative Analysis of Video: A Practical Guide"
2003	**Certificate,** GLOBE Program Certification
2003	**Course Attendee,** NARST Pre-conference research and training workshop "Assessing Learners' Views of Nature of Science: Hands-on/Minds-on Experiences"

TEACHING INTERESTS AND COURSES TAUGHT

Interests: elementary science curriculum and instruction, teacher candidate supervision, research in science education, neuroscience, genetics, introductory biology, immunology.

Courses taught in Biology

EMBO	Yeast-Two Hybrid System – An EMBO Practical Course (Munich, Germany)
X110	Development and Repair of the Nervous System (undergrad/graduate, UC Berkeley)
X138	Developmental Biology (undergraduate/graduate, UC Berkeley)
BIO107	Introductory Biology: Disease (undergraduate, WSU)
BIO345	Concepts in Biology I (undergraduate, WSU)
SPST195.1	Biomedical Research in Our Lives (undergraduate, QC)
E14.0210/ E52.0141	Science in the Community (undergraduate, Steinhardt MAP course developed by Kirch and approved 2008)

Courses taught in Education

ED419/429	Supervising Teaching: Science (undergraduate, WSU)
ED311	Early Childhood Science: Curriculum and Materials (undergraduate, WSU)
EECE555	Science in the Elementary School (graduate, QC)
EECE753	Science for Elementary School Teachers (graduate, QC)
EECE758	Life Science for Elementary School Teachers (graduate, QC)
EECE759	Environmental Literature (graduate, QC)
EECE800	Issues in Math, Science and Technology Education (graduate, QC)
E14.2009	Science Experiences in the Elementary School II (graduate, NYU)
E14.2010	Science Experiences in the Elementary School II (graduate, NYU)
E27.3037	Proseminar for Doctoral Students in Teaching and Learning I (graduate, NYU)
E25.1141	Integrating Curricula in Science and Health in Childhood Education

(undergraduate, NYU)
E25.1006 Integrating Seminar (undergraduate, NYU)
E14.3021 Professional Seminar in Science Education: Conceptual Foundations of Science Education (graduate-doctoral, NYU)
E14.2300 Historical Foundations of Science Education Research (graduate-doctoral, NYU)

Courses taught in Equity
BIO800 Women in Science (graduate, WSU)

COURSE DEVELOPMENT & REVISION

E14.0210/E52.0141 Science in the Community (filed and approved as a new course in Fall 2008) - This course provides students with opportunities to use scientific information to solve real-world problems and assist non-formal and community science organizations with generating and/or analyzing data to answer specific questions. The following three organizations were featured in Spring 2009: The River Project, NYC Soil and Water Conservation District, and SolarOne. Students learned how each of these organizations use and produce scientific knowledge for the public. The River Project is "a marine science field station founded in 1986 and works to protect and restore the ecosystem of the Hudson River estuary through scientific research, hands-on environmental education, and urban habitat improvement" (www.riverproject.org). Students worked with The River Project to analyze data associated with estuarine ecology studies conducted by the project staff. SolarOne (S^1) has dedicated itself to inspiring New Yorkers to become environmentally responsible residents (http://solar1.org/). For the SolarOne project, students focused on translating information about the science of alternative energy for a school-aged audience. The mission of the New York City Soil and Water Conservation District is to conserve these resources, improve water quality, protect public lands, and to promote the health, safety, and general welfare of the City (http://www.nycswcd.net/). Students worked with this organization to participate in the NYC soil survey and to translate data and findings for public audiences.

E14.3021 Professional Seminar in Science Education: Conceptual Foundations of Science Education (redesigned) This course provides science education doctoral students with a foundation in theoretical frameworks used in science education research. This course was redesigned to focus students on a study of the role of theory in science education research. To this end we (1) read accounts by researchers describing their research and the theoretical framework they used, (2) read the original works of theorists employed by educational researchers, (3) review current literature in science education research and articles of interest to see how theory is presented in these works, and (4) begin to determine how theory can help students shape their research questions in preparation for dissertation proposal seminar.

E25.1141/E25.1006 Integrating Curricula in Science and Health in Childhood Education (further development) In collaboration with an undergraduate team interested in improving the science methods course instruction for undergraduates in the Childhood Education program, I led the revisions of E25.1141/E25.1006 for trial in Spring 2009. Students developed instructional modules based on contemporary research questions and explorations in science. Students presented their work at the annual Sharing Our Success conference and expanded on their work to learn more about science teaching and learning from the children and teachers in their field placement sites.

E14.2300 Historical Foundations of Science Education Research (pilot course under development for curriculum committee application) This course is currently under development as an Independent Study even though it serves from 4-8 students/semester and will be submitted for review Fall 2010 after the second implementation trial. The purpose of this course is to provide graduate students in Science Education with a historical overview of the development of the science education research community – its evolving priorities, its research tools, its debates, and its progress. Currently students read extensively from all the major research journals in science education beginning with the earliest articles (e.g., 1905 in Science Education) and continuing through each decade to present day publications. They are asked to look for trends in the research questions, methods, theoretical frameworks, and conclusions. *Note: With the dramatic reduction in the number of doctoral students due to school policy, this course development is on hold.*

E14.2009+E14.2010 – *Science Experiences in the Elementary School I and II* were combined into an experimental course for the Childhood (MA) program during the Fall of 2010 and will be repeated in 2011 prior to curriculum committee application for revision. Most elementary school teachers do not have an opportunity to teach science as a student teacher because science is taught outside the mentor teacher's classroom or it is not taught at all. To ensure that we prepare elementary school teachers who are not afraid of science and who feel confident and able to teach science, we have developed this course. This new course (unique in the nation, according to literature review) combines a free after-school enrichment program for public school students within our curriculum and instruction course for pre-service K-6 teachers. In this model, elementary school students receive science instruction designed by NYU students who are, in turn, enrolled in our teacher preparation programs and guided by science education faculty. The instructional practices and tools in this course feature cutting-edge teaching practices under examination for "what works" by researchers in the department. The classroom activities captured on video are processed, reviewed and analyzed during the course by researchers, instructors, and NYU students who are preparing to be teachers. Data on the first cohort of students indicates that the beliefs, habits and practices of participating students are being challenged in a productive way leading these future teacher leaders to conceptualize elementary science teaching in a way that fosters student engagement, motivation and curiosity.

SERVICE: UNIVERSITY

Department-level

NYU-Teaching and Learning

2008-present	Science Education Team Leader for the establishment of the Jhumki Basu Science Education Institute
2009-present	Promotion and Tenure Committee, Member (elected position)
2008-present	Interim co-Director, Graduate Program in Childhood Education (MA)
2008-present	Director, T&L/Science Education Doctoral Program
2007-present	Doctoral Committee member
2010-2011	Chair, Faculty Search Committee – Childhood Education Position
2009-2010	Strategic Planning Committee, Member
2008-2009	Chair, Faculty Search Committee – Childhood Education Position
2007-2008	Curriculum Task Force member
2007	Childhood/Early Childhood Task Force member

CUNY

2006-2007	Urban Education Membership Committee (elected position) – Grad. Center
2005-2007	Urban Education (SMT) Graduate Admissions Committee – Graduate Center
2003-2007	NCATE Assessment Committee Member – EECE, Queens College
2003-2007	Science Specialization Program Coordinator (an M.S.Ed. Program)
2003-2007	Queens College School for MST/PS/IS499 Interface Committee Member
2003-2007	Queens College School for MST/PS/IS499 Science Curriculum Advisor
2003-2005	EECE Alumnae Newsletter co-editor
2003-2004	Faculty Search Committee – EECE, Queens College

WSU

2002-2003	Faculty Search Committee – Biology Department, Wright State University

Division/School-wide

NYU-Steinhardt School

2007-present	Teacher Education Council – Steinhardt Representative
2007-present	Faculty "Outside Reader" volunteer for doctoral dissertation final oral exams
2008	Dean's Advisory Group on Teacher Education
2007	Intramural grants competition reviewer

CUNY

2004-2006	NCATE Standard 1 Committee Member - Division of Education
2006	Search Committee Member – Equity Studies Research Center Coordinator
2005	Search Committee Member – Coordinator of Special Projects

University-wide

NYU

2007-2009	Science Education and Outreach Committee (position appointed by Senior Vice Provost for Research, Pierre Hohenberg; committee disbanded in 2009)

SERVICE: PROFESSION

Editorial Activity

Journal of Science Teacher Education	Editorial Review Board Member 2009-2011 (ad hoc reviewer since 2006)
Cell Biology Education	(ad hoc reviewer since 2001)
Science Education	(ad hoc reviewer since 2008)
AERA: Teaching & Learning SIG	(proposal reviewer since 2007)
NARST	(proposal reviewer since 2007)

Grant Proposal Review

National Science Foundation	(ad hoc reviewer since 2008)

PROFESSIONAL MEMBERSHIPS

American Association for the Advancement of Science (AAAS)
American Education Research Association (AERA)
American Supervisors in Curriculum Development (ASCD)
Association of Science Teacher Educators (ASTE)
National Association of Biology Teachers (NABT)

National Association of Researchers in Science Teaching (NARST)
National Science Teachers Association (NSTA)
School Science and Mathematics Association (SSMA)
Sigma Xi – Scientific Research Society

INVITED SPEAKING ENGAGEMENTS

Kirch, S.A. (2010). *Teaching and Learning about Scientific Evidence: A Developmental Education Perspective.* Invited speaking engagement at New York University's Saturday Science public lecture program. October 2&13, 2010.

Kirch, S.A. (2009). Keynote Address. *Teaching & Learning Science: Uncertainty and the nature of scientific evidence.* Invited speaking engagement at UMDNJ, New Jersey.

Kirch, S.A. and Chiang, R. (2009). *Teaching and Learning the Nature of Scientific Evidence: Research and development of teaching-learning resources for elementary school students and teachers.* Invited speaking engagement at the USER-S Conference, New York, NY.

Kirch, S.A. and Chiang, R. (2009). *Teaching and Learning the Nature of Scientific Evidence: Research and development of teaching-learning resources for elementary school students and teachers. Invited speaking engagement.* Presented at Sharing Our Success in Math and Science Conference, New York, NY.

Kirch, S.A. Keynote Address. "Question! Investigate! Using Science Trade books to Support Inquiry in the Classroom" Center for Literacy Conference on Non-Fiction – Science (Conference Organizer, Dr. Jan Kristo). University of Maine (September, 2008).

Kirch, S.A. Career Development Seminar Speaker. "The View From the Chalkboard: Ph.D. Career Paths in Science Education" Albert Einstein College of Medicine of Yeshiva University. New York, NY (May 2008).

Kirch, S.A. Invited Panelist. "Scientists Partnering with Educators: Why and How" Workshop sponsored by UCSF-SEP Director Kathleen Nielsen; American Association for the Advancement of Science (AAAS) Annual Conference, Boston, MA (February, 2008).

Kirch, S.A. Department Seminar Speaker. "Is *that* what happens when you have a cold? Using case studies and reflective journaling to teach introductory biology" Molecular Cell Biology and Biotechnology Seminar; Fralin Biotechnology Center, Virginia Tech; Blacksburg, VA (April 2005).

Kirch, S.A. Program Seminar Speaker "Trends in science instruction: Inquiry in the classroom." Bronx Science Summer Institute for Teachers. Queens College, Flushing, NY. (August 2005).

Kirch, S.A. Department Seminar Speaker. "Research scientist/SEP trainee meets the real world: Reflections on becoming a science educator." University of California, San Francisco; San Francisco, CA. (May 2003).

Kirch, S.A. Department Seminar Speaker. "Wiring up the worm." Mount Holyoke College; South Hadley, MA. (April 2002).

Kirch, S.A. Program Seminar Speaker. "Wiring up worms: The development of neurons and synapses." CSP Links: University of California, San Francisco; San Francisco, CA (January 2001).

CONFERENCE PRESENTATIONS

Kirch, S.A., Naidoo, K. (presenters), Stetsenko, A., Milne, C. (co-authors) (2011). "Teaching and Learning Concepts of Scientific Evidence: A Design-based Research and Development Study."

- National Association for Research in Science Teaching Annual Meeting, Orlando, FL

Kirch, S.A., Chiang, R., Naidoo, K. (presenters), Stetsenko, A., Milne, C. (co-authors) (2010). "The Scientific Thinker Project: A Design-based Research Study of Teaching and Learning Concepts of Evidence and Nature of Scientific Evidence in Primary School."

- National Association for Research in Science Teaching Annual Meeting, Philadelphia, PA.
- American Educational Researchers Association Annual Meeting. Denver, CO.

Kirch, S.A. (2008). "A comparative science study: Uncertainty in the laboratory and in the science education classroom"

- National Association of Research in Science Teaching. Baltimore, MD (March, 2008)
- American Association of Educational Research. New York, NY (April, 2008)

Kirch, S.A. and Siry, C. (2008). "Maybe the algae was from the filter": Theorizing 'maybe' and its use by young children in conversation.

- Association of Science Teacher Education. St. Louis, MO (January 2008)
- National Association of Research in Science Teaching. Baltimore, MD (March, 2008)

Kirch, S.A. "Teaching critical literacy using science trade books for youth"

- American Association of Colleges for Teacher Education. New York, NY (February 2007)
- Association of Science Teacher Education. Clearwater Beach, FL (January 2007)

Kirch, S.A. "Talking science: Patterns of inquiry in an elementary school classroom"

- Association of Science Teacher Education. Clearwater Beach, FL (January 2007)
- National Association of Research in Science Teaching. New Orleans, LA (April 2007)

Kirch, S.A., Amoroso, M., Scotti, P., and Shmuel, A. "Learning how to teach science through coteaching: A reciprocal professional development partnership"

- American Association of Colleges for Teacher Education. New York, NY (February 2007)

Kirch, S.A., and Amoroso, M. "Co-teaching and co-planning elementary school science in a school-university partnership"

- Ethnography Forum, University of Pennsylvania. Philadelphia, PA (February 2007)
- National Association of Research in Science Teaching. New Orleans, LA (April 2007)
- American Association of Educational Research. Chicago, IL (April 2007)

Kirch, S.A. and Amoroso, M. "Analysis of classroom conversations with children in science"

- Fostering Women's Success in Science Conference. Flushing, NY (November 2005)
- Association of Science Teacher Educators. Portland, OR (January 2006)
- National Association for Research in Science Teaching. San Francisco, CA (April 2006)

Kirch, S.A. and Amoroso, M. "Learning through coteaching: A reciprocal professional development partnership"

- Association of Science Teacher Education, Portland, OR (January 2006)
- Ethnography in Education Research Forum, Philadelphia, PA (February 2006)

Kirch, S.A., Bargerhuff, M., Turner, H., Wheatly, M. "In pursuit of inclusive science education: Fourteen professional development journeys"

- Hawaii International Conference on Education. Waikiki, HI (January 2005).
- National Association of Research in Science Teaching Conference. Dallas, TX (April 2005).

Hammrich, P.L., Myers, M.E., **Kirch, S**., and Ragins, A. "Sisters in science dissemination and outreach project: Fostering gender equitable teaching practices"

- Hawaii International Conference on Education. Waikiki, HI (January 2005).
- National Association of Research in Science Teaching Conference. Dallas, TX (April 2005).

Hammrich, P.L., Myers, M.E., Fadigan, K., **Kirch, S**., and Ragins, A. "Sisters in science in the community"

- Hawaii International Conference on Education. Waikiki, HI (January 2005).
- National Association of Research in Science Teaching Conference. Dallas, TX (April 2005).

Kirch, S.A., Hammrich, P.L., Myers, M.E., and Ragins, A. "Sisters in science in the community"

- Meeting for Principal Investigators of NSF-Funded Youth/Community and ASCEND Programs. AAAS, Washington, DC (October 2004).

Hammrich, P.L., Myers, M.E. and **Kirch, S**. "The sisters in science equity reform project."

- Association for Gender Equity Leadership in Education. Washington, D.C. (July 2004).

Kirch, S.A., Bargerhuff, M., Turner, H., and Wheatly, M. **"**Inclusive science education: Classroom teacher and science educator experiences in class workshops."

- National Association of Research in Science Teaching Conference. Vancouver, BC Canada (April 2004).

Kirch, S.A. "Moving ahead with CLASS: Inclusion and inquiry for all."

- National Science Teachers Association. Philadelphia, PA. (March 2003).

Hampton, R.M. and **Kirch, S.A.** "Characterization of neuron morphology in *sax* mutants."

- International Worm Meeting. San Diego, CA (June 2003). *Rachael Hampton was a student in my laboratory.*

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Huang, S.B., **Kirch, S.A.,** Crump, G., Bargmann, C. "Identification and characterization of genes involved in neuronal connectivity in *C. elegans."*

Kirch, S.A. and Heidi Turner. "CLASS – Creating Laboratory Access for Science Students."
- National Association for Biology Teachers. Cincinnati, OH (October 2002).

Kirch, S., Crump, G., Bargmann, C. "Sensory axon guidance defects in *C. elegans*."*
- International Worm Meeting. San Diego, CA (June 2001).

Kirch, S., Crump, G., Bargmann, C. "Sensory axon guidance defects in *C. elegans.*"*
- West Coast Worm Meeting. Berkeley, CA (June 2000).

Tanner, K., Caldera, P., Strauss, E. and **Kirch, S.A.** "Students asking questions"
- California Science Teachers Association, Sacramento, CA (October 2000).

Kirch, S.A., Crump, G.C., Bargmann, C.I. "Sensory axon guidance defects in *C. elegans*."*
- International Worm Meeting. Madison, WI (June 1999).

Kirch, S.A., Crump, G.C., Bargmann, C.I. "Characterization of sensory axon guidance defects in *C. elegans."*
- Axon Guidance and Developmental Plasticity of the Nervous System Meeting. Cold Spring Harbor, NY (September 1998).

Kirch, S.A., Crump, G.C., Bargmann, C.I. "Characterization of mutants with ASI axon guidance defects."
- West Coast Worm Meeting. Berkeley, CA (June 1998).

**Note:* same title was used during these years, but new data were presented each year on the progress of characterization and genetic mapping.

ARTICLES IN NEWSLETTERS AND REPORTS

Kirch, S.A. (Spring 2006). The Queens College Connection: An Update from Dr. Kirch. *The Source* (Queens College School for Math, Science, and Technology PTA Newsletter)

Kirch, S.A. (Winter 2005). The Queens College Connection: Interview with Dr. Kirch. *The Source* (Queens College School for Math, Science, and Technology PTA Newsletter)

Kirch, S.A. (2004-2005). Teaching and Learning Science in the Elementary School: Elementary Students' Pathways to Understanding Science Concepts and Developing Inquiry Skills. Report on Progress of Research for NSF-DTS Award (PI Kenneth Tobin, CUNY Graduate Center)

Kirch, S.A. (Winter, 2004). Urban Scholar Report: Featuring Dr. Susan Kirch. *Urban Scholar Newsletter*