CURRICULUM VITAE

Gail Horowitz, Ph.D.

Department of Chemistry

Brooklyn College

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##### Education

#### Teachers College, Columbia University 2009

Doctor of Philosophy in Science Education

#### Advisor: Dr. Roger O. Anderson

Thesis: Intrinsic Motivation of Students Exposed to a Project-Based Organic Chemistry Laboratory Curriculum

#### Columbia University 2008

Master of Philosophy in Science Education

#### Columbia University 1988

Master of Arts in Chemistry (Specialization: Organic Chemistry)

Advisor: Dr. Gilbert Stork

Research: Intramolecular, Regioselective Ring Opening of Epoxides via a Temporary Silicon Connection

#### Barnard College, Columbia University 1987

#### Bachelor of Arts in Chemistry, Cum Laude, Dean's List.

##### Employment

# Brooklyn College, City University of New York 2010 - present

Lecturer of Chemistry with Certificate of Continuous Employment

# Yeshiva College, Yeshiva University 1990 - 2009

Instructor of Chemistry & Laboratory Coordinator 1990-2009

Academic Advisor 1998-2005, 2009

Director of Examinations 1995-1997

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##### Courses Taught

Organic Chemistry I Lecture & Laboratory

#### Organic Chemistry for Health & Nutrition Lecture & Laboratory

#### Nursing Chemistry Lecture & Laboratory (General, Organic, Biochemistry)

#### General Chemistry I & II Laboratory

#### Non-Majors Chemistry Lecture & Laboratory

#### Honors & Awards

Brooklyn College Award for Excellence in Teaching for Full-time Faculty, 2017, $5000.

Brooklyn College Chapters of Minority Association of Pre-Health Students & American Medical Women’s Association Certificate of Appreciation, 2016.

Brooklyn College National Black Science Students Association Teacher Appreciation Award, 2011.

#### Grants & Funding

PSC CUNY Grant, Can Providing Training to New Graduate Students Improve Their Teaching of Organic Chemistry Recitation? An Action Research Study, 2012, $3500.

Program in Science Education Travel Grant, Teachers College, 2009, $500.

Spencer Research Training Grant, Teachers College, 2008, $1000.

Doctoral Summer School, International Conference on Motivation (ICM), University of Turku, Turku, Finland, 2008, funding for room and board.

Doctoral Consortium, International Conference of the Learning Sciences (ICLS), Utrecht University, Utrecht, The Netherlands, 2008, $1650.

##### Peer Reviewed Publications \*undergraduate mentee, \*\*graduate mentee

**Horowitz, G**., Domzalski, A.C. & Elizalde Utnick, Grace. (in press). Can we teach science in a more culturally responsive way without sacrificing time or content? *Journal of College Science Teaching.*

**Horowitz, G**. (2017). First generation college students: How to recognize them and be their ally and advocate. *Journal of College Science Teaching. 46(6),* 6-7.

**Horowitz, G.** (2016). Comment on “Beyond clickers, next generation student response systems for Organic Chemistry”. *Journal of Chemical Education*. *93(11),* 1829.

Nieswandt, M. & **Horowitz, G.** (2015). Task and choice and the development of undergraduate students’ interest: Stimulating content may not always work. In M. Nieswandt, S. Hidi & A. Renninger (Eds.), *Interest in Mathematics and Science Learning* (pp. 225-242)Washington: American Educational Research Association.

**Horowitz, G.** (2014). The intrinsic motivation of students participating in a project-based organic chemistry laboratory curriculum. In D. Sunal, C. Sunal, E. Wright, C. Mason & D. Zollman (Eds.), *Research Based Undergraduate Science Teaching* (pp. 333-378) Charlotte: Information Age Publishing.

**Horowitz, G**., Rabin, L., Brodale, D. (2013). Improving student performance in Organic Chemistry: Help seeking behaviors and prior chemistry aptitude. *Journal of the Scholarship of Teaching and Learning*. *13(3),* 120-133.

**Horowitz, G.** (2010). It’s not always just about the grade: Exploring the achievement goal orientations of *pre-med* students. *Journal of Experimental Education, 78(2),* 215-245.

**Horowitz, G.** (2009). A safer, discovery-based nucleophilic substitution experiment. *Journal of Chemical Education, 86(3),* 363-346.

Siry, C., **Horowitz, G**., Otulaja, F.S., Gillespie, N., Shady, A. & Augustin, L.A. (2008). Conceptual change research and science education practice: A response from educators. *Cultural Studies of Science Education,* invited paper, *3(2),* 451-470.

**Horowitz, G.** (2008). What’s wrong with cookbooks? *Journal of Chemical Education, 85(1),47.*

**Horowitz, G**. (2007). The state of organic teaching laboratories. *Journal of Chemical Education, 84(2),* 346-353, review article, 268 references.

Sheppard, K. & **Horowitz, G.** (2006). From Justus von Liebig to Charles W. Eliot: The establishment of laboratory work in U.S high schools and colleges. *Journal of Chemical Education, 83(4),* 566-570.

**Horowitz, G.** & \*Schwartz, G. (2004). Exploring organic mechanistic puzzles with molecular modeling. *Journal of Chemical Education, 81(8)*, 1136-1139.

**Horowitz, G.** (2004). Molecular modeling of non-trivial cyclohexane derivatives: A discovery approach. *Journal of Chemical Education, 81(7)*, 1006-1009.

**Horowitz, G.** (2003). A discovery approach to three organic laboratory techniques. *Journal of Chemical Education, 80(9)*, 1039-1041.

**Horowitz**, G. (2000). Undergraduate separations utilizing flash chromatography. *Journal of Chemical Education, 77(2),* 263-264.

Viswanathan, R. & **Horowitz, G.** (1998). Integrating computers into the first-year chemistry laboratory: Application of Raoult's law to a two-component system. *Journal of Chemical Education, 75(9),* 1124-1125.

##### Manuscripts Under Review \*undergraduate mentee, \*\*graduate mentee

Elbulok-Charcape, M., McCallen L., **Horowitz, G.** & Rabin, L., (revise and resubmit). Investigating divergent outcomes in Organic Chemistry I. *Research in Science Education.*

Astrof, N. & **Horowitz, G.** (revise and resubmit). Protein colorimetry experiments that incorporate intentional discrepancies and historical narratives**.** *Journal of Chemical Education.*

**Horowitz, G**. (under review). Teaching STEM to 1st generation college students: A guidebook for faculty & future faculty.

\*\*Grandoit, E., \*Bergdoll, R., \*Rosales, E., \*Turbeville, D., \*\*Mayer, S. & **Horowitz, G**. (under review). Exploring Organic Chemistry I students’ responses to an exam wrapper intervention. *Journal of Research in Science Teaching.*

##### Other Publications \*undergraduate mentee, \*\*graduate mentee

\*Hackman, N., \*Rosales E., Chavarga, A., \*\*Grandoit, E.; \*\*Mayer, S., Elbulok-Charcape, M., \*Turbeville, D., \*Bergdoll, R., Domzalski, A. & **Horowitz, G.** (in preparation). An exam wrapper intervention in Organic Chemistry I: Impact on Course Performance & Study Behavior. *Journal of College Science Teaching.*

**Horowitz, G.** (2017, October 18). Letter to the editor: In response to “A seat in the honors academy. *The Excelsior.* pp. 5.

Hainline, L., **Horowitz, G**., Lipke, P, Muth, T.R. & Sims, L. (2017, spring). Promoting success of underrepresented students in science: Strategies, approaches, and lessons learned. Retrieved from http://facultyresourcenetwork.org/publications/teaching-a-new-generation-of-students/

**Horowitz, G.** & Rabin, L. (2013). Improving student outcomes in Organic Chemistry through action research. Background Research Paper No. 31, Tuscaloosa, AL: *National Study of Education in Undergraduate Science*, Retrieved from nseus.org

**Horowitz, G.** (2009). Do students experience project-based laboratory curricula as motivating? A study of an organic chemistry laboratory curriculum. *Conference Proceedings of the Annual National Association for Research in Science Teaching (NARST),* Garden Grove, California. Seventy five pages.

#### Presentations \*undergraduate mentee, \*\*graduate mentee

**Horowitz, G.** (2018). *The overt and covert role that classism plays in STEM success in higher education.* To be presented at the Urban Science Education Research Seminar (USER-S). The Graduate Center of the City University of New York, New York, N.Y.

\*Hackman, N., \*Rosales E. & **Horowitz, G.** (2018, May*). Student performance in response to an exam wrapper intervention in Organic Chemistry I.* Poster to be presented at Science Day, Brooklyn College, The City University of New York, Brooklyn, N.Y.

\*\*Grandoit, E., \*\*Mayer, S. & **Horowitz, G.** (2018, May). *Students’ qualitative responses to an exam wrapper intervention in Organic Chemistry I.* Poster to be presented at Science Day, Brooklyn College, The City University of New York, Brooklyn, N.Y.

**Horowitz, G.** (2018, March). *Breaking the student/professor barrier.* Invited panelist at the Alliance for the Low-Income & First-Generation Narrative (AL1GN) 2018 Conference. George Washington University, Washington, D.C.

**Horowitz, G.** (2018, March). *The insider info that gives upper class/continuing gen students an advantage in STEM and what you can do about it.* Invited presentation to be presented at the Alliance for the Low-Income & First-Generation Narrative (AL1GN) 2018 Conference. George Washington University, Washington, D.C.

**Horowitz, G**., \*\*Grandoit, E. \*Bergdoll, R. \*Rosales, E. \*\*Mayer, S. \*Turbeville, D. (2018, March). Improving STEM outcomes for underrepresented students: Can a modest intervention impact a deep-seated problem?  Poster to be presented at the Understanding Interventions Conference, Baltimore, MD.

**Horowitz, G.** (2017, September). *Study skills necessary for success in STEM.* Invited presentation presented at meeting of Collegiate Science and Technology Entry Program (CSTEP), Brooklyn College, The City University of New York, Brooklyn, NY.

Astrof, N. & **Horowitz, G.** (2017, September). *Incorporating ambiguity tolerance and self-transcendence into a suite of protein concentration determination activities.* Presented at the Annual International Visual Literacy Association Conference, Lesley University, Cambridge, Mass.

Astrof, N. & **Horowitz, G.** (2017, June). *Incorporating ambiguity tolerance and self-transcendence into a suite of protein concentration determination activities.* Poster presented at the Gordon Research Conference on Chemical Education, Bates College, Lewiston, Maine.

**Horowitz, G.,** Hainline, L., Lipke, P., Joyner, J., Sims, L. (2017, May). ***The ARRAS concept: Strategies, tactics and lessons learned while teaching at Brooklyn College.*** Presented at Faculty Day, Brooklyn College, The City University of New York, Brooklyn, NY.

**Horowitz, G**., Mirotznick, J. & Shottenkirk, D. (2017, May). ***Academic ethics: Don’t we always do the right thing?*** Presented at Faculty Day, Brooklyn College, The City University of New York, Brooklyn, NY.

Astrof, N. & **Horowitz, G**. (2017, May). *Incorporating ambiguity tolerance and self-transcendence into a suite of protein concentration determination activities.* Poster presented at the 2YC3 Conference (2 Year College Chemistry Consortium) at Bronx Community College, Bronx, NY.

Lori, S. & **Horowitz, G.** (2017, May). *Peer-Assisted team research (PATR): A model for early research experiences.* Presented at the 2YC3 Conference (2 Year College Chemistry Consortium) at Bronx Community College, Bronx, NY.

**Horowitz, G.** (2017, February). *Fostering and encouraging academic help seeking.* Invited presentation presented at the Academic Resource Center, College of Arts and Sciences, New York University, NY.

**Horowitz, G.** (2016, December). *Advising STEM students, especially first generation and transfer students.* Invited presentation presented at the Center for Academic Advisement and Student Achievement, Brooklyn College, The City University of New York, Brooklyn, NY.

**Horowitz, G**.; Hainline, G.; Lipke, P.; Muth, T.R. & Sims, L. (2016, November) *Promoting success of underrepresented students in science: Strategies, approaches & lessons learned.* Presented at the Annual Symposium of the Faculty Resource Network, Atlanta, Georgia.

**Horowitz, G.** (2016, May) *Student success in STEM:  Why social class matters.* Presented at Faculty Day. Brooklyn College, The City University of New York, Brooklyn, NY.

Cuervo, A., \*\*Elbulok-Charcape, M., **Horowitz, G.**, & Rabin, L. A. (2015, November). *Self-regulated learning among Organic Chemistry I students with various academic outcomes*. Paper presented at the Annual Biomedical Research Conference for Minority Students, Seattle, Washington.

**Horowitz, G.** (2015, September) *Who are our students?* Invited presentation presented at Orientation for New Faculty. Brooklyn College, The City University of New York, Brooklyn, NY.

**Horowitz, G.** (2015, August). *How to succeed in Organic Chemistry.* Presented at Brooklyn College, The City University of New York, Brooklyn, NY.

**Horowitz, G.** (2015, January). *How to succeed in Organic Chemistry.* Presented at Brooklyn College, The City University of New York, Brooklyn, NY.

**Horowitz, G**., Rabin, L. & Brodale, D. (2014, September). *Using action research to improve student outcomes in Organic Chemistry.* Invited presentation presented at Chemistry Department Seminar. Long Island University, Brooklyn, NY.

**Horowitz, G.** (2013, May). *Out and proud on campus: Why we can’t wait.* Invited panelist at Faculty Day. Brooklyn College, The City University of New York, Brooklyn, NY.

**Horowitz, G.** & Rabin, L. (2012, May). *Improving student outcomes in Organic Chemistry through action research.* Presented at the NSEUS National Conference on Research Based Undergraduate Science Teaching II, University of Alabama, Tuscaloosa, Alabama.

**Horowitz, G.** (2011, November). *Encouraging academic help seeking:  Improving student performance through action research.*  Presented at the Center for Teaching, Brooklyn College, The City University of New York, Brooklyn, NY.

**Horowitz, G.** (2011, June). *Triggering but not maintaining situational interest in Organic Chemistry.* Presented at the Annual Meeting of the Jean Piaget Society. Berkeley, California.

**Horowitz, G.**, Scharron del Rio, M. (2011, May). *Teaching a culturally diverse population. The joys and challenges of teaching at BC.* Presented at Faculty Day. Brooklyn College, The City University of New York, Brooklyn, NY.

**Horowitz, G.** (2010, August). *Issues of validity when conducting semi-structured interviews in an action research study.* Presented at the Biennial Conference on Chemical Education (BCCE). University of North Texas, Denton, TX.

**Horowitz, G.** (2009, December). *Community colleges: Creating barriers or providing opportunities?* Presented at the Urban Science Education Research Seminar (USER-S). The Graduate Center of the City University of New York, New York, N.Y.

**Horowitz, G**. (2009, April). *Tracking interest development in a project-based chemistry laboratory.* Presented at the annual meeting of the American Educational Research Association (AERA). San Diego, California.

**Horowitz, G.** (2009, April). *Do students experience project-based laboratory curricula as motivating? A study of an organic chemistry laboratory curriculum.* Presented at the annual meeting of the National Association for Research in Science Teaching (NARST). Garden Grove, California.

**Horowitz, G.** (2008, August). *A theoretical framework for exploring the connections between project-based science & student motivation.* Presented at the International Conference on Motivation (ICM). University of Turku, Turku, Finland.

**Horowitz, G**. (2008, August). *The intrinsic motivation of students participating in a project-based organic chemistry laboratory curriculum.* Presented at the Doctoral Summer School of the International Conference on Motivation (ICM). University of Turku, Turku, Finland.

**Horowitz, G.** (2008, June). *The intrinsic motivation of students participating in a project-based organic chemistry laboratory curriculum.* Presented at the Doctoral Consortium Workshop of the International Conference of the Learning Sciences (ICLS). University of Utrecht, Utrecht, The Netherlands.

**Horowitz, G.** (2008, May). *Student motivation and reform in the organic laboratory.* Invited presentation presented at the Middle Atlantic Regional Meeting (MARM) of the American Chemical Society. Queensborough Community College, Queens, NY.

**Horowitz, G.** (2008, March). *Exploring the achievement goal orientations of pre-med students.* Presented at the annual meeting of the American Educational Research Association (AERA). New York, NY.

Sheppard, K. & **Horowitz, G.** (2007, January). *History of high school laboratory work in chemistry and physics.* Presented at the Physics Teachers’ Club of New York. New York, NY.

**Horowitz, G.** (2006, May). *Developing and Implementing an STS Chemistry Course for Non-Science Majors.* Final presentation of Science, Technology and Society course. Teachers College, Columbia University. New York, NY.

**Horowitz, G.** (2004, July). *A discovery approach to purification techniques:  Extraction, recrystallization and distillation.* Invited paper presented at the Biennial Conference on Chemical Education (BCCE). Iowa State University, Ames, IA.

**Horowitz, G.** (2002, August). *Science of chemistry:  Environmental chemistry for the non-science student.* Presented at the Biennial Conference on Chemical Education (BCCE). Western Washington University, Bellingham, WA.

**Horowitz, G.** (2002, August). *Incorporating environmental chemistry into the analytical laboratory.* Presented at the Biennial Conference on Chemical Education (BCCE). Western Washington University, Bellingham, WA.

**Horowitz, G.** (2000, November). *Discovery-inquiry approaches in chemistry laboratories.* Presented at Faculty Development Day, Yeshiva University. New York, NY.

#### Mentorship

Faculty Advisor, REU Student, Natasha Hackman, Spring 2018

Faculty Advisor, Minority Association of Prehealth Students, Brooklyn College, 2011-Present

Informal Prehealth Advisor, 2010-Present (review and edit personal statements, coach and mentor students, write recommendation letters)

#### Professional Activities & Service to the College

Reviewer, Journal of Chemical Education

Reviewer, Research in Science Education

Committee Member, Science Retreat Committee, Brooklyn College, 2010- Present

Chair, Chemistry Department Outcomes Assessment Committee, Brooklyn College, 2010 - Present

Faculty Advisor, Minority Association of Prehealth Students (MAPS), Brooklyn College, 2011-Present

Committee Member & Poster Session Chair, Faculty Day Committee, Brooklyn College, 2014-Present

Committee Member, Chemistry Department High School Day Committee, Brooklyn College 2010 - 2015

Committee Member, Faculty Council Committee on Advisement, 2016-2017

Board Member, Roberta Matthews Center for Teaching, Brooklyn College, 2012-2014

Chair of Search Committee, Roberta Matthews Center for Teaching, Brooklyn College, 2014-2015

Committee Member, Faculty Awards Search Committee, Brooklyn College, 2014, 2015, 2016

#### Relevant Graduate Level Coursework

Advanced Organic Chemistry I (Physical Organic Chemistry)

Advanced Organic Chemistry II (Photochemistry & Organometallic Chemistry)

Synthetic Methods in Organic Chemistry

Organic Spectroscopy

Bio-Organic Topics

Quantum Chemistry

Spectroscopic Methods (FTNMR)

Applied Regression Analysis

Probability and Statistical Inference

Methods of Inquiry: Ethnography and Participant Observation

Qualitative Research Methods: Data Analysis and Reporting

Multicultural Science Education

Curriculum and Pedagogy in Science Education

Concepts in Chemistry (audit)

Science in Childhood Education (audit)

Curriculum Theory and History

Cognition and Learning

Developmental Psychology: Adulthood and the Life Span

Human Motivation (audit)

#### Computer Skills

SPSS

Spartan, Cache, Gaussian (Molecular Modeling)

ChemDraw, Chemwindow, KnowItAll (Structure Drawing)

Logger Pro (Computer Interfaced Data Collection)

Banner (Enrollment Database)

Angel, Blackboard (Course Management)

CMS400, Frontpage, Micromedia Contribute (Webpage Design)

Endnote

Microsoft Word, Excel, Powerpoint, Publisher

#### Conferences and Workshops Attended

American Educational Research Association (AERA) Conference, New York, NY, April 2018

Alliance for First Generation and Low Income Narrative (AL1GN) Conference, George Washington University, March, 2018

Understanding Interventions, Baltimore, MD, March 2018

2YC3 Conference (2 Year College Chemistry Consortium) at Bronx Community College, May 2017

Alliance for First Generation and Low Income Narrative (AL1GN) Conference, Barnard College, April 2017

Fairplay Workshop: Unconscious Bias in Academia, Brooklyn College, March 2017

Faculty Resource Network, Atlanta, GA, November 2016

Biennial Conference on Chemical Education, University of Northern Colorado, August 2016

Real Work: Authentic Scientific Practices in Student Assignments. Faculty Resource Network Seminar, New York University, June 2016

American Educational Research Association, Washington, D.C., April 2016

Faculty Diversity and Inclusion Conference, CUNY Graduate Center, March 2015

Team Based Learning, Workshop Series, Brooklyn College, 2013

**Teaching Portfolio Institute, Brooklyn College, June 2013**

**Making NMR Accessible: Bench top NMR Spectroscopy in the Classroom, Online, May 2013**

NSEUS Research Based Undergraduate Science Teaching Conference II, University of Alabama, Tuscaloosa, May 2012

AERA Conference: Interest and Self-Concept of Ability in K-16 Mathematics and Science Learning, Swarthmore College, May 2012

Encouraging Active Student Participation, Brooklyn College, March 2012

Active Student Participation, Brooklyn College, March 2012

Urban Science Education Research Seminar Series (USER-S), City University of New York, 2011.

Diversity Workshop Series, Brooklyn College, Fall 2011

ITEST: Advancing Research on Youth Motivation in STEM, Boston College, September 2011

Jean Piaget Society Annual Meeting, Berkeley, June 2011

Biennial Conference on Chemical Education, University of North Texas, August 2010

Getting Started with Peer-led Team Learning, New Jersey City University, June 2010

POGIL Northeast Regional Meeting (Process Oriented Guided Inquiry Learning), Sacred Heart University, June 2010

Grant Writing Workshop, Brooklyn College, June 2010

SCALE-UP (Student Centered Active Learning Environment for Undergraduate Programs) Workshop, Brooklyn

College, April 2010

Science Education for the 21st Century: Strategies for Success, City University of New York, April 2010

National Association for Research in Science Teaching, Philadelphia, March 2010

Writing Competitive Proposals for NSF Division of Research on Learning, Philadelphia, March 2010

Conference on the Scholarship of Teaching and Learning (CASTL), LaGuardia Community College, March 2010

Using WileyPLUS as the Online Assessment Solution in the Organic Chemistry Classroom, Online, March 2010

New Faculty Retreat, City University of New York, January 2010

Urban Science Education Research Seminar (USER-S), City University of New York, 2008-present

Studio Code (Video Editing Software) Workshop, City University of New York, October 2009

In Their Shoes (Working with Students with Disabilities), Online, September 2009

[At-Risk: Identifying and Referring Students in Mental Distress](http://lms.kognito.com/course/view.php?id=7), Online, May 2009

Bridging Practice and Research in Urban Education, City University of New York, April 2009

National Association for Research in Science Teaching, Garden Grove, California, April 2009

American Educational Research Association, San Diego, California, April 2009

International Conference on Motivation, University of Turku, Finland, August 2008

International Conference of the Learning Sciences, Utrecht University, The Netherlands, June 2008

Beyond Tolerance, New York University, June 2008

Sharing our Success, New York University, May 2008

Middle Atlantic Regional Meeting, American Chemical Society, Queensborough Community College, May 2008

American Educational Research Association, New York, New York, March 2008

Journal of Chemical Education Chem Ed Digital Library Course, Online, Fall 2007

Computer-Supported Collaborative Learning, Rutgers University, July 2007

American Educational Research Association, Chicago, Illinois, March 2007

Sisters in Science, Queens College, October 2006

Gordon Research Conference on Chemical Education, New London, Connecticut, June 2005

Biennial Conference on Chemical Education, Iowa State University, June 2004

Biennial Conference on Chemical Education, Western Washington University, August 2002

NSF Short Course: Chemistry in Context, University of Pittsburg, June 2002

Science Education for New Civic Engagement and Responsibility, Santa Clara University, August 2001

Biennial Conference on Chemical Education, University of Michigan, Ann Arbor, August 2000

Biennial Conference on Chemical Education, University of Waterloo, August 1998

LoggerPro Workshop (Computer Interfaced Data Collection), Long Island, New York, 1997

Workshop on Microscale Organic Chemistry Laboratories, Merrimack College, July 1993