

# Hyesang Chang

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## Education

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**University of Chicago, Chicago, IL** **Expected June 2017**  
Ph.D. in Psychology (Cognition)

Thesis: *The role of anticipation in the relation between math anxiety and math performance.*

Committee: Sian L. Beilock, Ph.D. (Chair), Greg J. Norman, Ph.D., Marc G. Berman, Ph.D.

**University of Chicago, Chicago, IL** **June 2011**

M.A. in Social Sciences (Psychology)

Thesis: *Numeral-ordering ability mediates the relationship between math-anxiety and math-ability.*

Advisor: Sian L. Beilock, Ph.D.

**Grinnell College, Grinnell, IA** **May 2009**

B.A. in Psychology, Concentration in Neuroscience

Academic Advisor: Nancy L. Rempel-Clower, Ph.D.

Mentored Advanced Project Advisor: Janet M. Gibson, Ph.D.

## Research Interests

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Anxiety; numerical cognition; interactions between emotion and cognition; individual differences in learning and performance; interdisciplinary research.

## Publications

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**Chang, H., & Beilock, S. L.** (2016). The math anxiety-math performance link and its relation to individual and environmental factors: a review of current behavioral and psychophysiological research. *Current Opinion in Behavioral Sciences, 10*, 33-38.

Ramirez, G., **Chang, H.**, Maloney, E. A., Levine, S. C., & Beilock, S. L. (2016). On the relationship between math anxiety and math achievement in early elementary school: The role of problem solving strategies. *Journal of Experimental Child Psychology, 141*, 83-100.

**Chang, H.** & Gibson, J. M. (2011). The odd-even effect in Sudoku puzzles: Effects of working memory, aging, and experience. *American Journal of Psychology, 124*, 313-324.

Brooks, J. O., **Chang, H.**, & Krasnykh, O. (2009). Metabolic risks in older adults receiving second-generation antipsychotic medication. *Current Psychiatry Reports, 11*, 33-40.

## Funding/Awards

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2013 – 2017	Norman Henry Anderson Research Fund	\$2,055.35
2015	Division of the Social Sciences Summer Grant	\$3,000
2015 – 2017	Hymen Milgrom Supporting Organization Chang, H. & Herts, J. <i>Reducing the link between math anxiety and low math achievement</i>	\$49,847
2016 – 2017	Chicago Center for Teaching Fellowship	\$3,600
2016 – 2017	Undergraduate Preceptorship	\$1,000

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## ***Presentations***

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### **Invited Talk**

2014. *Understanding the relationship between math anxiety and performance*. Department of Psychology, Elmhurst College, Elmhurst, IL.

### **Departmental Talk**

2013. *The role of math anxiety in learning arithmetic facts*. Department of Psychology Cognitive Brown Bag, University of Chicago, Chicago, IL.

### **Conference presentations**

**Chang, H.**, Sprute, L., Maloney, E. A., Beilock, S. L., & Berman, M. G. (2017, March). *Simple arithmetic: Not so simple for highly math anxious individuals*. Poster presented at the 2017 CNS Annual meeting in San Francisco, CA.

**Chang, H.**, Van Hedger, K., Henry, A., Norman, G. J., & Beilock, S. L. (2014, November). *The role of anticipation in the relation between math anxiety and math performance*. Poster presented at the 55<sup>th</sup> Annual Meeting of the Psychonomic Society, Long Beach, CA. ***Selected as one of eleven finalists for the APA Division 3 Early Career Poster Award***

**Chang, H.**, Lyons, I. M., & Beilock, S. L. (2013, November). *Symbolic processing mediates the relationship between math anxiety and mental arithmetic performance*. Poster presented at the 54<sup>th</sup> Annual Meeting of the Psychonomic Society, Toronto, Ontario, Canada. ***Selected as one of nine finalists for the APA Division 3 Early Career Poster Award***

**Chang, H.**, Lyons, I. M., & Beilock, S. L. (2013, May). *Symbolic processing mediates the relationship between math-anxiety and mental-arithmetic*. Oral presentation at the 85<sup>th</sup> Annual Meeting of the Midwestern Psychological Association, Chicago, IL.

Brooks, J. O., **Chang, H.**, Bearden, C. E., & Glahn, D. C. (2011, June). *Prefrontal and limbic dysregulation during emotional processing in bipolar disorder: a functional magnetic resonance imaging meta-analyses*. Poster presented at the 9<sup>th</sup> International Conference on Bipolar Disorder, Pittsburgh, PA.

Brooks, J. O., **Chang, H.**, Bearden, C. E., & Glahn, D. C. (2010, May). *Dysregulated activation of prefrontal and limbic regions in emotional processing in bipolar disorder: A meta-analysis*. Poster presented at the 65<sup>th</sup> Annual Meeting of the Society of Biological Psychiatry, New Orleans, LA.

Gibson, J. M. & **Chang, H.** (2009, May). *Working memory modulates the odd-even effect in Sudoku puzzles and math problems*. Poster presented at the 21<sup>st</sup> Annual Meeting of the Association for Psychological Science, San Francisco, CA.

## ***Research Experience***

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### ***Doctoral Student Researcher***

Sept. 2012 – Present

Institution: Department of Psychology, University of Chicago, Chicago, IL

- Review literature and address research questions to help advance knowledge in the field;
- Design and conduct research projects, recruit participants from various populations, carry out statistical analysis, and communicate research findings to the scientific and broader community.

### ***Research Assistant***

May 2011 – Jul. 2012

Institution: Human Performance Lab, Department of Psychology, University of Chicago, Chicago, IL

Project: Learning Math & Spatial Skills (P.I.: Sian L. Beilock, Ph.D.)

- Recruited first and second grade teachers and their students, prepared and administered various cognitive and affective measures, trained individuals, coded qualitative data, and built and managed data sets to facilitate a research project aimed at illuminating the factors associated with math achievement in early elementary school.

*Staff Research Associate I*

Jan. 2010 – May 2010

Institution: Cousins Center for Psychoneuroimmunology, University of California, Los Angeles, CA

Project: Sleep and Healthy Aging Research Study (P.I.: Michael R. Irwin, M.D.)

- Recruited older adults from the Greater Los Angeles Area and administered telephone surveys to study the relation among subjective social isolation, sleep, and general health in older adults.

*Research Assistant*

Aug. 2009 – May 2010

Institution: Semel Institute for Neuroscience and Human Behavior, University of California, Los Angeles

Project: Meta-analysis of fMRI studies of affective processing in healthy adults and patients with bipolar disorder (Supervisor: John Brooks, Ph.D., M.D.)

- Performed meta-analyses on functional magnetic resonance imaging studies of affective processing in healthy individuals and patients with bipolar disorder.

*Undergraduate Student Researcher*

Aug. 2008 – May 2009

Institution: Department of Psychology, Grinnell College, Grinnell, IA

- Developed a research protocol to investigate the role of working memory in processing odd and even numbers across younger and older adults (Mentored Advanced Project);
- Recruited younger adults from college campus and older adults from the surrounding community, ran experiments, analyzed the data, and presented the findings at an academic conference.

*Research Assistant*

May 2008 – Aug. 2008

Institution: VA Palo Alto Health Care System; Stanford University School of Medicine

Project: Neurocognitive function in older adults with bipolar disorder (P.I.: John Brooks, Ph.D., M.D.)

- Assisted with data entry and analyses, literature search, and writing a manuscript.

***Training Course Completed***

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2015. The Mind Research Network (MRN) fMRI Image Acquisition and Analyses Course.

***Teaching and Advising Experience***

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**Teaching** (Institution: University of Chicago, Chicago, IL)

*Instructor*

Cognitive Psychology

Summer 2016

- Designed a syllabus to teach undergraduate and visiting high school students;
- Developed teaching methods and assessments that facilitate student-centered learning.

*Teaching Assistant*

Psychological Research Methods

Winter 2015, Winter 2016

- Led weekly lab section to advise students on designing and conducting a research project, writing research proposal and report, and presenting a scientific poster;
- Delivered guest lectures on Experimental Design to a classroom of ~80 students.

Cognitive Psychology

Spring 2015

- Led weekly discussion section to review course materials and facilitate students' discussion on topics related to cognition;
- Assisted in developing questions for weekly quizzes and short-answer assignments.

Psychological Statistics

Fall 2015

- Led weekly lab section and held regular office hours to review statistical concepts;
- Graded weekly assignments and identified students' difficulty in mastering certain topics to be later reviewed during the lab section.

## **Advising** (Institution: University of Chicago, Chicago, IL)

*Undergraduate Preceptor in Psychology* Sept. 2016 – Present

- Co-led a Lab Night event for research lab members across campus to introduce opportunities to undergraduate students interested in gaining research experience;
- Assist in holding workshops and panels for undergraduate students' academic and career development.

*Chicago Center for Teaching Fellow* Jun. 2016 – Present

- Develop and co-lead workshop series that cover pedagogical topics on undergraduate teaching in the field of Psychology;
- Act as a mentor for graduate students to provide resources on teaching and discuss teaching issues across disciplines in the University.

*Research lab mentor* Sept. 2012 – Present

- Advised senior honor's thesis and independent study;
- Mentor undergraduate, graduate, and high school graduate research assistants.

## **Pedagogical Training**

2015 - 2016. *Workshop on Teaching in the College, College Teaching Course, Teaching by Discussion, How to Design an Award Winning Course, Teaching Portfolios*. Chicago Center for Teaching, University of Chicago, Chicago, IL.

## **University Service**

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Institution: Department of Psychology, University of Chicago, Chicago, IL

*Student coordinator* Sept. 2013 – Jun. 2015

Cognitive Brown Bag series

- Invited guest speakers and coordinated department-wide workshop series on topics in Cognition.

*Professional Development Committee member* Sept. 2015 – Jun. 2016

Psychology Graduate Student Organization

- Assisted in planning and organizing events that help graduate students navigate their career paths.

## **Outreach**

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2015. "What do I study?" (5<sup>th</sup> grade classes), "How to look at brain data: A tutorial." (12<sup>th</sup> grade advanced biology class). Francis W. Parker School, Chicago, IL.

## **Skills**

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### **Laboratory**

Animal (rat handling; performance of intraperitoneal/subcutaneous injections, stereotaxic surgery, perfusion, histology [cutting frozen sections, mounting, staining, lesion analysis]; behavioral task design, behavioral coding and analysis); Clinical (neuropsychological assessment); Survey (computer-assisted telephone interviewing [CATI]); Experimental (computerized task design, quantitative and qualitative data coding and analysis); Psychophysiological (electrocardiogram, functional magnetic resonance imaging data acquisition and analysis).

### **Computer**

MS Office, E-Prime, SPSS, Stata, Matlab, MindWare Heart Rate Variability and Impedance Cardiography Analysis Software, Statistical Parametric Mapping, BrainVoyager, BrainMap Software.

### **Languages**

English, Korean.

***Professional Affiliations***

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American Psychological Association: Division 3  
Association for Psychological Science  
Cognitive Neuroscience Society  
Midwestern Psychological Association  
Psychonomic Society