

# Lucerna

A University of Missouri-Kansas City Undergraduate  
Research Journal Presented by the Honors Program

*volume five issue one*

including papers from:

*Jennifer Garnett*

*Thomas Nienaber*

*Elaina Newton*

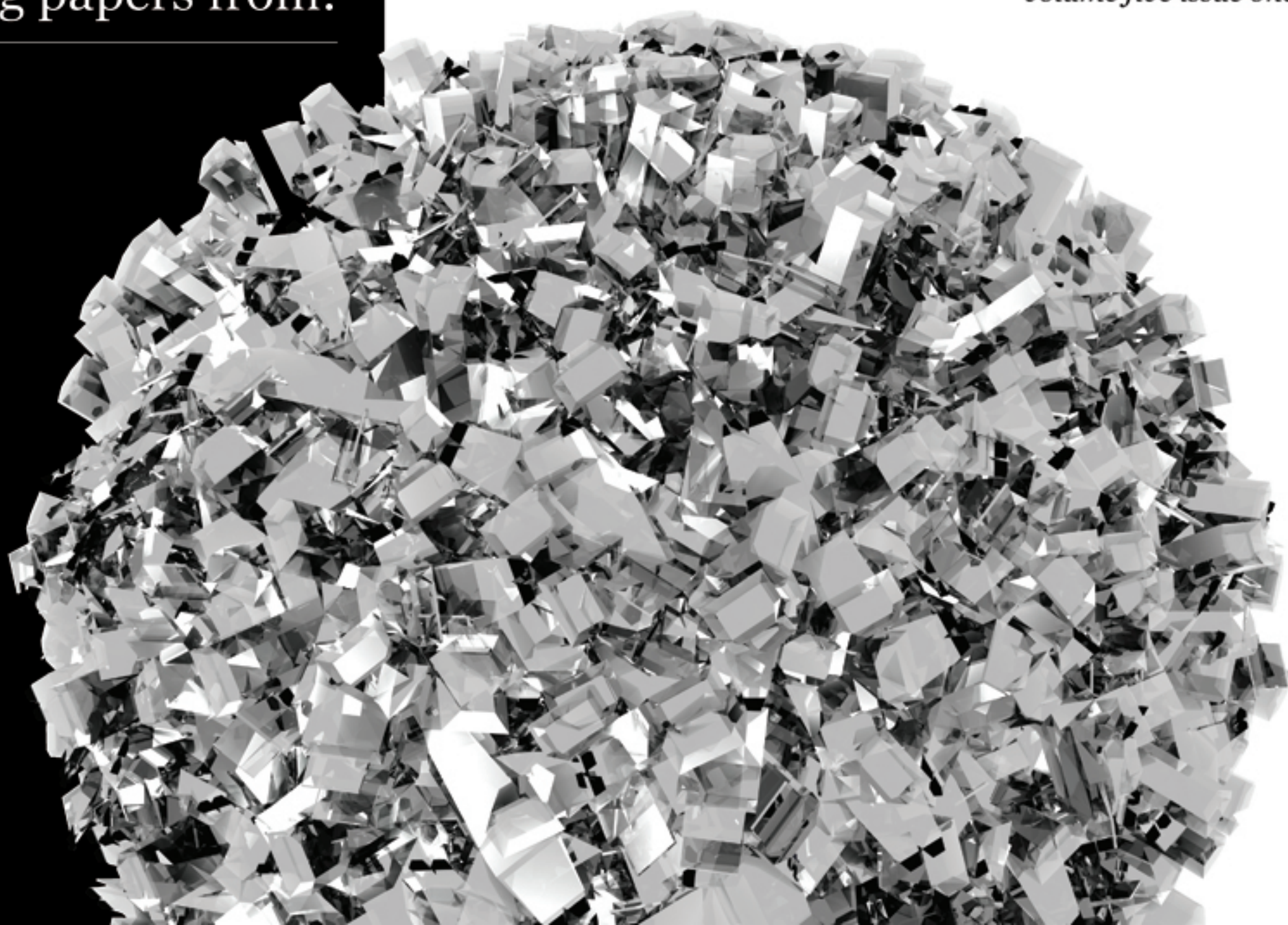
*Paige Snyder*

*Nicholas Ball*

*Derek Jenkins*

*Kathyrn Hembree*

*Brodie Barnard*





# L U C E R N A

AN UNDERGRADUATE JOURNAL  
PRESENTED BY THE  
HONORS PROGRAM

The University of Missouri-Kansas City

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## A N O T E f r o m t h e E d i t o r

This is now our fifth year of publishing *Lucerna*. I hope you will enjoy reading this as much as we have enjoyed putting it together. I would be remiss if I did not thank the previous editors who laid the foundation for this edition and the many volunteers who helped make this journal possible. I also owe much gratitude to the editorial staff this year for all their help. The help and advice of our faculty advisor Dr. John Herron is greatly appreciated. Also, this edition would not have been possible without the help of the Honors Program Director, Dr. Gayle Levy, and its secretary Sally Mason. Both of them have been untiring in their support. Lastly, we should thank the Arts and Sciences Student Council for the funding to make this publication possible.

I believe the papers contained herein represent the best work from a variety of disciplines. The diverse topics chosen by the authors provide a very enjoyable read. The research presented in these pages, from the undergraduates here at the University of Missouri-Kansas City, provides a very inspiring and informative collection of papers. I am very humbled by the amount of excellent material presented outside my own comfort zone.

I thank all those who submitted their work to *Lucerna* this year. We had many more good papers than we could possibly publish. I wish the best to all those who submitted in their future endeavors.

Enjoy!

*Ad Maiorem Dei Gloriam*

Sincerely,  
Thomas Nienaber  
2010 Editor-In-Chief

## E D I T O R I A L B O A R D

Editor-in-Chief

Thomas Nienaber

Thomas graduated in May 2010 with a major in biology and a minor in chemistry. He is currently applying to medical school and hopes to be able to study abroad. Having attended high school in Australia, his ambitions for med school are to return to his adopted home “Down Under.” As Kansas City is his real home, UMKC was the logical choice for his undergraduate studies due to its research focus in the Biological Sciences. Thomas was a volunteer for *Lucerna* as a freshman and helped read and proof papers. Since then, he has always been involved in one capacity or another. The Honors Program enabled him to meet other like-minded students, take a more active role in his studies, and to engage in biological research. In his leisure time, Thomas enjoys reading, especially if there is a mystery involved, model trains, teaching, and working with computers.

Graphic Design Editor

Corey Light

Corey is a studio artist and art educator. The Honors Program has given Corey a chance to develop in a cooperative academic environment while meeting dedicated students and staff. He enjoys designing and laying out *Lucerna* because he’s always excited to present the best of UMKC to the public. He spends his days entrenched in graphic design and photography, hoping to continually enhance the visual landscape in the future. Corey is the Editor-in-Chief of *Dossier Magazine*, a collaborative and comprehensive arts publication at UMKC.

Executive Secretary

James Comninellis

James chose to major in history. He has a passion for Medieval History and came to UMKC because it has several professors specializing in the area. He participated in Honors because he was looking for a way to get involved that centered on academics. He joined *Lucerna* because it seemed the experience would aid his academic future. James enjoys reading, playing the violin, and boxing. After graduation he plans to pursue master’s work, possibly in theology.

## EDITORIAL BOARD

Treasurer \_\_\_\_\_ ✕ \_\_\_\_\_ Sara Tucker

Sara is pursuing a major in middle school math education and a minor in mathematics. She chose UMKC because of its wonderful education program, great diversity, the fact that it is close to home yet still far enough away to feel independent, and a GREAT scholarship! She has always been involved in honors classes and programs. Sara wanted to continue this, and joined the UMKC Honors Program. In addition, the honors-only study abroad program was something she was interested in. She wanted to get involved with Lucerna when she first heard about it her freshman year, but was unable to participate until now. In her free time, Sara loves taking pictures and scrapbooking. After she graduates, Sara plans to teach in a middle school in Kansas City, Missouri.

Managing Editor \_\_\_\_\_ ✕ \_\_\_\_\_ Michele Smith

English with a Creative Writing emphasis is Michele's chosen major. Her long-term goal is to become a successful lawyer. Since Michele knew that the admissions process for law school would be competitive and that she wanted to attend an excellent law school, she implemented a plan designed to make herself a compelling candidate. Michele improved her grade point average significantly while at Penn Valley Community College and was inducted into Phi Theta Kappa. Once she transferred to UMKC, she wanted to continue that effort by joining the Honors Program. Becoming a part of the Lucerna staff was her contribution to the Honors Program and an opportunity to stay focused on writing. In her free time, Michele enjoys reading books about theology, African American history and politics. She also enjoys listening to music, with an emphasis on jazz, gospel and spirituals.

## EDITORIAL BOARD

Assistant Managing Editor \_\_\_\_\_ ✕ \_\_\_\_\_ Heather Inness

Heather is an English Literature major. She has lived her whole life in Kansas City and was offered good scholarships at UMKC. She thought joining the Honors Program would be a good opportunity to meet people and could not resist the priority registration. Heather was a reader for Lucerna her first year; she enjoyed it and thought she would try a more involved role this year. Her hobbies include reading and participating in Internet fandom communities. Heather would like to work as an editor for a publishing house.

\_\_\_\_\_ ✕ \_\_\_\_\_  
Dr. Gayle Levy - Honors Program Director  
Dr. John Herron - Honors Associate Director  
Dr. Andrew Bergerson - Honors Faculty Fellow  
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Sara Jean Tucker

# A B O U T T H E A U T H O R S

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Nick Ball is a senior at UMKC majoring in mathematics and statistics. The paper that Nick submitted for this volume also earned him recognition as a finalist in the annual HOMSIGMAA (History of Mathematics Special Interest Group of the Mathematical Association of America) nationwide contest for papers written in History of Mathematics courses. Nick wishes to thank Prof. Richard Delaware.

Brodie Barnard graduated from UMKC in May 2010 with a degree in psychology. She chose UMKC because of the smaller class size and friendly atmosphere. She is very interested in the correlation between exercise and stress levels because she grew up playing sports; exercise has always been a part of her life. Her hobbies include reading, playing volleyball, and yoga. Brodie plans on attending graduate school at UMKC for clinical psychology and becoming a college professor. Brodie wishes to thank Prof. Linda Garavalia.

Jennifer Garnett graduated from UMKC in May 2010 with degrees in both Art History and English Literature. She chose UMKC because of the close interaction between the Nelson-Atkins Museum of Art and the Art Department at UMKC, as well as references to teachers from fellow classmates. She also chose UMKC because it is well known in the Kansas City area, where she is from. She loves art of all forms and mediums, the history of it and how it evolved. Jennifer is an artist, writer, and musician. She hopes to begin working on her Masters soon, and aspires to work in the Art History field. She would like to thank her friends and family for their support in everything she does; if it weren't for them, she wouldn't have gotten so far. Jennifer wishes to thank Prof. Burton Dunbar.

Kathryn Hembree graduated with honors from UMKC in May 2009 with degrees in both chemistry and philosophy. She chose to attend UMKC for the opportunities available in undergraduate research, and the vast selection of curriculum in the sciences. Since June 2009, Kathryn has been working as an investment banker at Goldman Sachs in New York City. She enjoys reading, organic living, international travel, viticulture, yoga, and speaking French. Kathryn wishes to thank Prof. James Sheppard.

Derek M. Jenkins recently completed his degrees in music composition and music theory with a minor in German language at UMKC. His music has been performed throughout the US and in Europe. In addition to his time at UMKC, he spent spring 2009 in Klagenfurt, Austria, continuing his studies in music composition and German. Outside of music, Jenkins enjoys reading about Central and Eastern European history and has recently become a certified Open Water Diver. This fall, he will be starting his Masters at the Shepherd School of Music at Rice University. Derek wishes to thank Prof. William Everett.

Elaina Newton is a senior majoring in creative writing with a minor in manuscript, print culture, and editing. She chose UMKC because the English Program is excellent and the professors are phenomenal. Elaina enjoys reading, writing, watching films, cooking, and philosophizing. After graduation, she plans to pursue a career in the publishing field while writing creatively on the side. Elaina hopes that her essay will raise awareness of African conflict and incite critical thinking in relation to global issues. Elaina wishes to thank Prof. Stephen Dilks.

Thomas Nienaber graduated in May 2010 with a biology major, with an emphasis on the Cellular and Molecular Basis of Health and Disease. He chose UMKC as it was close to home, after studying abroad for several years, and because of its reputation as a research institution. Thomas currently works as a network operator, maintaining computer networks and websites for companies. He is very grateful to his family and the faculty at UMKC, especially those who aided and encouraged him during his time there. Thomas also wishes to thank SEARCH for helping to fund his research. Thomas wishes to thank Prof. Stephen King.

Paige Snyder is a history major with a minor in German Studies. She has studied many different types of history focusing on many different peoples, but has always been most interested in the political and social/ everyday life history of East Germany. With this paper she wanted to explore how those two worlds interacted: how two countries with opposing political systems used the same social and cultural tool (music) to legitimize their rule in post-WWII Germany. She intends to graduate in December and then go on to graduate school and earn a Ph.D. in order to dedicate her life to researching and teaching German history. Paige wishes to thank Prof. Larson Powell.