

Steven Craig Clontz, Jr.

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Education

PhD in Mathematics, Auburn University

May 2015, projected

Dissertation: *Limited information strategies for topological games*, under Gary Gruenhage

GPA: 4.00

Fitzpatrick Fellow (2012-13, 2014-15), Teaching Citation (2014-15)

COSAM Dean's Research Award for Doctoral Students (2015, nominated)

Masters in Mathematics, Auburn University

December 2010

Thesis: *Applications of stationary sets in set theoretic topology*, under Gary Gruenhage

GPA: 4.00

Bachelor of Science in Mathematics, Auburn University

May 2008

Honors Thesis: *The edge unfolding of generalized pyramids*, under Andras Bezdek

GPA: 3.88

Summa Cum Laude, University Honors Scholar, Dean's Medalist, Undergraduate Research Fellow

Phi Kappa Phi, Phi Beta Kappa

Specialties and Interests

- Set-theoretic topology
- Game theory
- Set theory
- Mathematical puzzles and games with applications to mathematics education
- Active and inquiry-based learning
- Applications of the web and programming to mathematics research and education

Employment and Professional Experience

- **Webmaster and Technology Assistant**, Auburn University Bands (January 2008 - May 2010)
- **Graduate Teaching Assistant and Instructor**, Auburn University Department of Mathematics (August 2008 - December 2013, August 2014 - present)
- **Co-founder and Software Engineer**, Teloga LLC (November 2011 - present)
- **Mathematics Instructor**, Southern Union State Community College (August 2013 - May 2014)
- **Specialist IV - Information Technology**, Auburn University Office of University Writing (January 2014 - May 2014)
- **Freelance mathematical puzzle and game designer** (June 2014 - present)

Papers

- *Proximal compact spaces are Corson compact*. Topology Appl. 173 (2014), 18 (with G. Gruenhage).
- *Game-theoretic strengthenings of Menger's property*. In preparation.
- *On n -tactics for Gruenhage's compact-point game*. In preparation.

Presentations

- *The edge unfolding of generalized pyramids*, presentation for the National Conference for Undergraduate Research (Spring 2008)
- Assorted presentations on set theory, game theory, and topology, for Auburn University REU in Algebra and Discrete Mathematics (Summers 2010-2014)
- *Limited information strategies for topological games*, presentation for Auburn University Research Week (February 2013)
- *Mathematics is all fun and games*, presentations for Auburn University COSAM Graduate Student Colloquium (October 2013) and Auburn University DMS Graduate Student Colloquium (October 2013)
- *Finite and infinite games / Undergraduate research and grad school*, invited presentation at Lamar University (June 2014)
- *Game-theoretic strengthenings of Menger's property*, presentations for the 29th Summer Topology Conference at CUNY Staten Island (July 2014) and the AMS Fall Southeastern Sectional Meeting special session on Set Theoretic Topology (November 2014)
- *Using AngularJS with Ruby on Rails*, invited lecture for The Iron Yard (Atlanta) Ruby on Rails course (September 2014)
- *Proximal compact spaces are Corson compact*, presentation for the AMS/MAA Joint Mathematics Meetings at San Antonio, TX (January 2015, submitted)

Teaching

- **Intermediate Algebra - MTH-098 (Southern Union)**
Hybrid lecture/lab course in developmental algebra using the ALEKS learning management system.
- **MathEXCEL (Auburn University)**
Worksheet-based recitation course for students taking Calculus I.
- **(Honors) Calculus I - MATH-1610/1617 (Auburn University)**
Topics covered: limits; the derivative of algebraic, trigonometric, exponential, and logarithmic functions; applications of the derivative, antiderivatives, the definite integral; applications to area problems; the fundamental theorem of calculus.

For honors sections, students created a capstone project and presentation illustrating the application of calculus to their own field of study or interests.

- **Calculus II - MATH-1620 (Auburn University)**

Topics covered: techniques of integration, applications of the integral, parametric equations, polar coordinates, vectors, lines and planes in space, infinite sequences, and series.

Currently developing inquiry-based learning notes for Fall 2014.

- **(Honors) Calculus III - MATH-2630/2637 (Auburn University)**

Topics covered: vector-valued functions, partial derivatives, multiple integration, and vector calculus.

For honors sections, students were assigned to research and present topics and examples during lecture (with optional assistance from the instructor).

- **Intermediate Euclidean Geometry I - MATH 5380 (Auburn University)**

Topics covered: Fundamental concepts and theorems of Euclidean geometry, introduction to higher dimensions. Regular polygons and polyhedra, symmetry groups, convexity, geometric extremum problems. Geometric transformations and their invariants.

Used inquiry-based learning notes written by Andras Bezdek and Wlodzimierz Kuperberg.

- Various tutoring experience as assigned by the AU Mathematics Department for calculus and analysis, in addition to freelance work as a college-preparatory and university-level mathematics tutor.

Outreach

- **A.M.P.'d (Auburn Mathematical Puzzle) Challenge (2012-2013)**

Co-created annual puzzlehunt-inspired mathematics competition for seventh and eighth grade students, serving as event Coordinator and puzzle designer for the January 2012, September 2012, and September 2013 competitions.

Served as writer, director, actor, videographer, and editor for videos framing the scenario for the competition, as well as designing L^AT_EX/PDF documentation to match the theme.

Wrote several mathematical puzzles based on graph theory, design theory, game theory, geometry, and other fields to be solved by teams of six to eight students.

Coordinated a staff of 35 graduate and undergraduate student volunteers and AU COSAM Outreach leadership each year.

- **AU Explore - Math EXPO (2009-2013)**

Developed several twenty-minute workshop activities for fifth grade students involving number theory, game theory, geometry, and graph theory.

Organized a volunteer staff of over a dozen graduate and undergraduate student volunteers to present these activities to rotating groups of students throughout the each annual event.

- **Lamar University Mathematical Puzzlehunt (2015)**

Hired as consultant to develop mathematical puzzle-solving competition for high school students. Includes a logic-based physical challenge and several smaller mathematics puzzles, each of which gives clues for an overarching mathematical meta-puzzle.

- **War Eagle BEST Robotics Competition (Judge, 2013)**

- **AU Science Olympiad for Elementary School (Event Designer, 2013)**

- **AU Science Olympiad for Middle School (Event Organizer, 2011-2012)**

Leadership and Service

- **National Youth Leadership Training**, Boy Scouts of America (2002-2011)
- **Eagle Scout**, Boy Scouts of America (2004-present)
- **Freshman Adviser**, Auburn University Bands (2007-2008)
- **Vice President, Founding Member**, Auburn University Math Club (2008-2009)
- **President, Executive Board Member**, AU Graduate Student Council (2010-2012)
- **Graduate Student Peer Mentor**, AU Department of Mathematics and Statistics (2011-2013)
- **Founding Member**, AU Mathematics and Statistics Graduate Student Leadership (2013)

Competencies and Other Experience

- **Course Notes**
Contributor to inquiry-based learning algebraic topology notes written by Krystina Kuperberg. Author of course notes for Calculus II and Calculus III.
- **π -Base Topology Database**
Database contributor and front-end code consultant. Project hosted at <http://topology.jdabbs.com>.
- **Learning Management Systems**
ALEKS, Instructure Canvas, Blackboard
- **Programming and Markup Languages**
HTML5 (Markdown, HAML, Slim), CSS (LESS, SASS), Javascript (CoffeeScript, jQuery, AngularJS), PHP (Wordpress, Wolf CMS), Python (Django), Ruby (Rails, nanoc), \LaTeX , Git, Firebase, SQL (MySQL, PostgreSQL), Data Serialization (JSON, YAML)
- **Open Source Software**
Contributor to several OSS repositories, including [lazy_high_charts](#), [angularjs-rails-resource](#), and [angular_devise](#). Maintains several open source repositories on Github [@StevenClontz](#).
- **Puzzle Design and Competition**
Has organized and competed in over a dozen separate puzzle competitions in the Auburn area and abroad. Holds the longest active winning record for team-based puzzle hunts in the Auburn area.
- **Entrepreneurship**
Co-founded Teloga, LLC to manage the customer relationship management website [Teloga.com](#) for music organizations. Also has experience as a freelance puzzle designer and mathematics tutor.
- More details on extracurricular experience may be viewed online at <http://stevenclontz.com/cv/>.