

# Joshua A. Cole

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## Positions

Assistant Professor (tenure track), St. Joseph's College (Indiana), since August 2015.

Visiting Assistant Professor, Pacific University, August 2014-July 2015.

Visiting Assistant Professor, Butler University, January 2013-July 2014.

## Education

**Ph.D. Mathematics**, University of Notre Dame, 2010.

Thesis: On the elementary theories of the Muchnik and Medvedev Lattices of  $\Pi_1^0$  classes.

Advisor: Peter Cholak.

**Graduate Studies in Philosophy and Theology**, St. Meinrad School of Theology, 2008-2012.

**M.A. Mathematics**, University of Notre Dame, 2008.

**B.A. Mathematics and Classics**, University of Dallas, 2004.

## Publications

*Densely embedding the countable free distributive lattice into the Muchnik degrees of effectively closed sets*, in preparation.

*Arguing why precisely assisted suicide is wrong and whether morality is more like math or art*. **Life and Learning XXVI: Proceedings of the 2016 University Faculty for Life Conference**, University Faculty for Life, 2017.

*The  $\forall\exists$ -theory of effectively closed Medvedev degrees is decidable*, with Takayuki Kihara. **Archive for Mathematical Logic**, 49:1-16, 2010.

*Mass problems and hyperarithmeticality*, with Stephen G. Simpson. **Journal of Mathematical Logic**, 7:125-143, 2008.

*Embedding  $FD(\omega)$  into  $\mathcal{P}_s$  densely*. **Archive for Mathematical Logic**, 46: 649-664, 2008.

## Talks, Conference and Seminar Presentations

*Arguing Why Precisely Assisted Suicide is Wrong & Whether Morality is More Like Math or Art*, University Faculty for Life Conference, June 10, 2016.

*$\Pi_1^0$  Classes and the Foundations of Mathematics*, Logic and Philosophy of Science Colloquium Series, University of California-Irvine, June 4, 2015.

*Zeno and the Mathematicians*, Mathematics Colloquium, Pacific University, Feb 25, 2015.

*Confronting the Silent Classroom: Strategies for Student Engagement*, Teaching Roundtable, Pacific University, Feb 10, 2015.

*A Density Question Where the Usual Constructions Haven't Worked*, 2014 Joint Mathematics Meetings, January 16, 2014.

*Unsolvable Problems*, Mathematics Colloquium, Butler University, October 19, 2012.

*Graduate Student Conference in Logic*, Notre Dame, April 2008.

*Graduate Student Conference in Logic*, Chicago, April 2007.

## Lectures for Saint Joseph's Interdisciplinary Core Program

In Saint Joseph's unique Core Program, an entire year of the college's students take an interdisciplinary course together each semester. There is a common lecture for all students twice a week, and afterwards students meet in smaller discussion sections. For example, I taught twice the class "The Roots of Western Civilization," in which most sophomores (over 200) were enrolled and viewed the lectures all together. The following are lectures I have given in the Core Program for these large audiences.

*Interpreting the Gospel of Matthew*, for the class, "The Christian Impact on Western Civilization,"  
January 17, 2017.

*The Discourse of Data: Interpreting Graphs in Arguments*, for the class "The Contemporary Situation,"  
October 6, 2016.

*The Odyssey: its Meaning and Value, Then and Now*, for the class "The Roots of Western Civilization,"  
October 4, 2016.

## Teaching

Saint Joseph's College, Rensselaer, IN

Spring, 2017:

**Historical Perspectives in Mathematics**

**Linear Algebra**

**Calculus IV (i.e. Vector Calculus)**

**Statistics**

Fall, 2016:

**Real Analysis**

**Geometry**

**Discrete Mathematics**

**The Roots of Western Civilization**

Spring, 2016:

**Statistics (2 sections)**

**Historical Perspectives in Mathematics**

Fall, 2015:

**Quantitative Literacy**

**Numerical Analysis**

**Modern Algebra**

**The Roots of Western Civilization**

Pacific University, Forest Grove, OR

Spring, 2015:

**Modern Topics in Mathematics** (2 sections)

**Calculus I**

Fall, 2014:

**College Algebra** (2 sections)

**Introduction to Statistics**

Butler University, Indianapolis, IN

Summer, 2014:

**Real Analysis**

**Complex Analysis**

Spring, 2014:

**Linear Algebra**

**Calculus II**

**Independent Study: Set Theory** (1 credit)

Fall, 2013:

**Business Calculus**

**Calculus I**

**Calculus II**

**Problem Seminar** (1 credit)

Summer, 2013: **Linear Algebra**

Spring, 2013:

**Business Calculus** (2 sections)

**Calculus II**

University of Notre Dame, Notre Dame, IN

Instructor, **Elements of Calculus I**, Summer 2007.

## Service

Coauthor of Spring 2017 Indiana Collegiate Mathematics Competition Exam.

Referee for the *Notre Dame Journal of Formal Logic* and for the *Archive for Mathematical Logic*.

Saint Joseph's College Faculty Research Seminar, creator & organizer, Fall 2016 - Spring 2017.

Math Challenge, a competition for high school students on the campus of Saint Joseph's, November, 2016. It was my idea to start this. I also wrote two problems for it, helped recruit student teams from area high schools, and helped run the event.

Drafted Proposal to Add Proofs Course to the Mathematics Curriculum, Fall 2016.

Helped Add a Pre-Engineering Track to the Mathematics Major, Spring 2016.

Presidential Scholarship at Saint Joseph's: interviewer (January, 2016); committee to revise the interview (Fall, 2016).

Organizer of Workshop of Quantitative Literacy in the Core Program, Saint Joseph's College, May 11, 2016.

Quantitative Literacy Guru: working for the implementation of quantitative literacy in the core program, Spring 2016.

Quantitative Literacy Committee, Fall 2015-Spring 2016.

Math Brain Teasers, weekly contest, Fall 2015-Spring 2016.

Committee Writing a Grant to Improve Retention of STEM students, Fall 2015.

Hiring Committees, various, 2015-2017.

## Professional Societies

American Mathematical Society

Association for Symbolic Logic

Indiana Academy of Science

University Faculty for Life