

# Timothy Homan

Instructor ♠ Department of Mathematics ♠ University of Alabama

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## EDUCATION

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<b>Ph.D., Mathematics</b> , <i>University of Alabama, Tuscaloosa, AL</i>	Aug. 2019
<b>M.A., Mathematics</b> , <i>University of Alabama, Tuscaloosa, AL</i>	Dec. 2018
<b>B.S., Mathematics</b> , <i>University of Alabama, Tuscaloosa, AL</i>	Dec. 2013
<b>B.A., Anthropology and Religious Studies</b> , <i>University of Alabama, Tuscaloosa, AL</i>	Dec. 2010

## RESEARCH INTERESTS

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I am interested in low dimensional topology with specific interests in Floer homology, grid homology, and Legendrian knot theory. I am also interested in  $A_\infty$  structures.

### Ph.D. Thesis

*A Combinatorial Proof of the Invariance of Tangle Floer Homology.*

Advisor: Dr. Lawrence Roberts

## POSITIONS

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<b>Instructor</b> , <i>University of Alabama, Tuscaloosa, AL,</i>	Aug. 2019 - Present
<b>Graduate Teaching Assistant</b> , <i>University of Alabama, Tuscaloosa, AL,</i>	Jan. 2014 - Aug. 2019
<b>English Instructor</b> , <i>Park Jung Academy, Changwon, South Korea,</i>	Sep. 2011 - Oct. 2012

## PUBLICATIONS

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### Articles in Preparation or Under Review

1. **T. Homan** and L. Roberts, *A Combinatorial Proof of the Invariance of Tangle Floer Homology* (In Preparation).

# TEACHING EXPERIENCE

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## Teaching Experience

### Grader

During my first year of graduate school in the Department of Mathematics at the University of Alabama, I served as a grader for Calculus 1 and Calculus 3.

### Instructor

As a graduate teaching assistant and faculty member in the Department of Mathematics at the University of Alabama, I have taught a wide variety of courses ranging from Intermediate Algebra to Applied Differential Equations I.

Below, I have a table detailing the specific courses I have taught. Teaching responsibilities include the following: preparing lecture material, giving lectures, creating and grading assignments and exams, hosting office hours.

Course	Course Type	Number of Sections
MATH 100 (Intermediate Algebra)	Flipped	3
MATH 110 (Finite Mathematics)	Partially Flipped	2
MATH 112 (Precalculus Algebra)	Partially Flipped	2
MATH 121 (Calculus and Applications)	Traditional	3
MATH 121 (Calculus and Applications)	Hybrid/Online	1
MATH 125 (Calculus 1)	Traditional	9
MATH 125 (Calculus 1)	Hybrid/Online	4
MATH 145 (Honors Calculus 1)	Traditional	2
MATH 126 (Calculus 2)	Traditional	3
MATH 227 (Calculus 3)	Traditional	5
MATH 227 (Calculus 3)	Hybrid/Online	2
MATH 237 (Linear Algebra)	Traditional	1
MATH 237 (Linear Algebra)	Hybrid/Online	1
MATH 238 (Applied Differential Equations I)	Traditional	1

Table 1: Table of the math courses I have taught at the University of Alabama. The second column indicates how the course was structured. The third column indicates how many times I have taught the course.

### Course Coordinator

Since Fall 2020, I have served as the Course Coordinator for Calculus 1. Responsibilities include preparing and posting standardized homework and tests for all of the Calculus 1 sections (including designing and programming new questions in WebAssign).

# HONORS AND AWARDS

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**Outstanding Teaching by a Ph.D. Student,**  
-Department based award at the University of Alabama

Spring 2019

## OUTREACH

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### Curriculum Development for College of Continuing Studies

Currently, I am creating an online course for Calculus 1 through the University of Alabama's College of Continuing Studies. The College of Continuing Studies is a program that produces flexible and innovative education materials and makes them available to distance learning and other nontraditional students. Duties include creating lecture material, recorded lecture videos, homework assignments, tests and other assessment materials.

### Tutoring Experience

#### Mathematics and Technology Learning Center (MTLC)

During 2014-2019, I served as a tutor at the MTLC. I helped students who were taking courses ranging from college algebra to Calculus.

#### ENGenuity Lab

During 2014-2015 and 2019, I served as a tutor at the ENGenuity Lab. Students taking courses like Calculus 1-3, Applied Differential Equations 1-2, Linear Algebra, Discrete Mathematics, and Probability could come to this lab to receive help on homework assignments and MATLAB projects.

## MEMBERSHIPS

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*American Mathematical Society (AMS)*

*Association for Women in Mathematics (AWM)*

*Mathematical Association of America (MAA)*

## SKILLS AND EXPERIENCES

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### Programming Skills

I predominately use Python for my research. I have used MATLAB to generate projects for students in courses like Honors Calculus 1, Applied Differential Equations 1, and Linear Algebra. I also have experience with PHP and other web based programming languages.

### Graphical Editing Skills

I have used Illustrator for making vector graphics for research and presentation materials. In my teaching I often use Desmos, Geogebra, or Manim to make illustrations or animations. I also have experience with video production and editing software including Premiere Pro and Panopto.

### Educational Software

As an instructor, I have used Webassign, Webwork, Hawkes, and MyLabsPlus.