

# Umut Caglar

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Dept. of Mathematics and Statistics

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## EDUCATION

Case Western Reserve University, Cleveland, Ohio

- **Ph.D. in Mathematics** 2010-2014  
Thesis: Divergence and entropy inequalities for log concave functions  
Advisers: Elisabeth M. Werner and Stanislaw J. Szarek
- **M.S. in Mathematics** 2008-2010  
Thesis: Floating bodies  
Adviser: Elisabeth M. Werner

Cukurova University, Adana, Turkey 2001-2005

- **B.S. in Mathematics**
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## EMPLOYMENT

- Associate Teaching Professor 2021-Present  
Florida International University  
Department of Mathematics and Statistics
  - Assistant Teaching Professor 2015-2021  
Florida International University  
Department of Mathematics and Statistics
  - Lecturer 2014-2015  
Case Western Reserve University  
Department of Mathematics
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## PUBLICATIONS

- **U. Caglar** and E. M. Werner. “Divergence for s-concave and log-concave functions.” **Advances in Mathematics** 257, pages: 219-247 (2014).
- **U. Caglar** and E. M. Werner. “Mixed f-divergence and inequalities for log-concave functions.” **Proceedings of the London Mathematical Society** 110, pages: 271-290 (2015).
- **U. Caglar**, M. Fradelizi, O. Guedon, J. Lehec, C. Schütt and E. M. Werner. “Functional version of  $L_p$ -affine surface area and entropy inequalities.” **International Mathematics Research Notices** 2016, pages: 1223-1250 (2016).
- **U. Caglar** and D. Ye. “Affine isoperimetric inequalities in the functional Orlicz- Brunn-Minkowski theory” **Advances in Applied Mathematics** 81, pages: 78-114 (2016)

- **U. Caglar** and E. M. Werner. “Stability results for some geometric inequalities and their functional versions” **Book Chapter: Convexity and Concentration** Vol. 161 of IMA Volumes in Math. and its Applications, pages: 541-564, Springer 2017
- **U. Caglar**, A. Kolesnikov and E. M. Werner. “Pinsker inequalities and related Monge-Ampere equations for log concave functions.” ArXiv: [2005.07055](https://arxiv.org/abs/2005.07055) **Indiana University Mathematics Journal, Vol. 71, No. 6 (2022)**
- Darici, Y., Kramer, L., Castillo, A., Benabentos, R., Secules, S., Miksovskaja, J., Wells, L., Cardella, M., Bhimani, J., & **Caglar, U.** (May 2023). Project VOCES: Establishing student voice to drive STEM education transformation. Presented at the 2023 National Science Foundation Hispanic Serving Institutions PI Meeting, San Antonio, TX.

## RESEARCH INTERESTS

Convex geometry, geometric analysis, geometric functional analysis, and information theory

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## SCHOLARSHIPS & AWARDS

- FIU-CASE Teaching Award 2024
  - FIU-Faculty Senate Excellence in Teaching Award (Received FIU Medal and \$5K) 2024
  - FIU-Gateway Award for Excellence in Teaching (Received FIU Medal and \$5K) 2023
  - Nominated for FIU-Faculty Senate Service Award 2023
  - FIU-Top Scholar Award 2022
  - FIU- Rewarding Excellence in Teaching Incentives (RETI) Award 2022
  - FIU-CASE Teaching Award 2021
  - Nominated for FIU-Top Scholar Award 2021
  - Nominated for FIU-Faculty Senate Excellence in Teaching Award 2020 & 2021
  - Nominated for FIU-Gateway Award for Excellence in Teaching 2020 & 2021
  - FIU-CASE Teaching Award 2019
  - Graduate student travel award from American Mathematical Society October 2013
  - Visiting scholar, Kiel University in Germany May 2013
  - Graduate assistantship (tuition, fees, monthly stipend),  
Mathematics Department, Case Western Reserve University 2010-2014
  - Graduate scholarship (tuition, fees, monthly stipend)  
by Turkish Government for M.S. and Ph.D. degrees in USA 2008-2014
  - Ranked first among the class of 2005 of the Cukurova University  
Department of Mathematics (Graduated Cum Laude) 2005
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## GRANTS/SUPPORTS:

- FIU-CAT (local) grant (\$5K), to redesign MAC 2311 by including Students in the team and using Chat GBT - Summer 2024 - Spring 2025
- FIU-CAT (local) grant (\$2.500), to redesign MAC 1147 with Open Education Resource book and implement Play Posit Videos - Summer 2023
- Faculty Fellow at NSF-HSI Institutional Transformation Project Voces (Award Number 2225201). Total award is \$2,999,986.00.
- CURM (The Center for Undergraduate Research in Mathematics), undergraduate research project, 2022 (Denied)
- FIU-CAT (local) grant (~4K), to redesign MAC 2281, 2282, and 2283 Calculus for Engineering in Hybrid and active learning format, Summer 2020
- FIU-STEM (local) grant (~\$10K), to redesign MAC 1147 Pre-Calc and Trig, Summer 2018 & 2019
- FIU-HHMI (local) grant (~\$4K), to redesign MAC 1140, Precalculus Algebra, Summer 2017
- **Dr. Umut Caglar (Co-PI)**, Dr. Peter J. Clarke (PI), Dr. Geoff Potvin (Co-PI), Dr. Bridgette Cram (Co-PI), Dr. Mario Eraso (Co-PI), Dr. Debra Davis (Co-PI), Ms. Maria Charters, (Co-PI), Ms. Leanne Wells, (Co-PI), Dr. Jeremiah Hower (Co-PI), and Dr. Anthony McGoron (Co-PI).  
**Project title:** “Student Engagement and Retention in Engineering and Computing Gateway Courses Supported by a Cyberlearning Environment (STEM-CyLE)”.  
**Agency:** IES, U.S. Dept. of Ed. Dates: 09/01/18 – 08/31/21.  
**Funds requested:** \$1.4M. (Denied)

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## TEACHING EXPERIENCE

- Stretch Pre-Calc Alg and Trig Summer 2025 (at FIU)
- Pre-Calc Alg and Trig(Online) Summer 2025 (at FIU)
- Trigonometry (Online) Summer 2025 (at FIU)
- Pre-Calc Alg and Trig (Hybrid) Spring 2025 (at FIU)
- Calculus I Spring 2025 (at FIU)
- Stretch Pre-Calc Alg and Trig Fall D 2024 (at FIU)
- Trigonometry (Online) Fall 2024 (at FIU)
- Pre-Calc Alg and Trig (Hybrid) Summer 2024 and Fall 2024 (at FIU)
- Stretch Pre-Calc Alg and Trig Summer A 2024 (at FIU)
- Pre-Calc Alg and Trig (Hybrid) Fall 2023 and Spring 2024 (at FIU)
- Calculus I Fall 2023 and Spring 2024(at FIU)
- Stretch Pre-Calc Alg and Trig Fall D 2023 (at FIU)
- Pre-Calc Alg and Trig (Hybrid) Spring2023&Summer 2023 (at FIU)
- Calculus I Spring 2023 (at FIU)
- Stretch Pre-Calc Alg and Trig Fall D 2022 (at FIU)

- Calculus I for Engineering (Hybrid) Fall 2022 (at FIU)
- Pre-Calc Alg and Trig (Hybrid) Spring 2022 & Fall 2022 (at FIU)
- Calculus I Spring 2022 & Fall 2022 (at FIU)
- Stretch Pre-Calc Alg and Trig Fall D 2021 (at FIU)
- Stretch Calculus II Fall D 2021 (at FIU)
- Pre-Calc Alg and Trig (Hybrid) Summer 2021 (at FIU)
- Stretch Pre-Calc Alg and Trig Summer 2021 (at FIU)
- Stretch Calculus II Summer 2021 (at FIU)
- Pre-Calc Alg and Trig (Hybrid) Fall 2020 & Spring 2021 (at FIU)
- Calculus I for Engineering Fall 2020 (at FIU)
- Calculus I (Hybrid) Summer 2020 & Fall 2020 (at FIU)
- Stretch Pre-Calc Alg and Trig Summer 2020 (at FIU)
- Pre-Calc Alg and Trig (Hybrid) Spring & Summer 2020 (at FIU)
- Calculus I for Engineering Spring 2020 (at FIU)
- Pre-Calc Alg and Trig (Online) Fall 2019 & Spring 2020 (at FIU)
- Finite Math (Hybrid) Fall 2019 (at FIU)
- Trigonometry (Hybrid) Summer & Fall 2019 (at FIU)
- Pre-Calc Alg and Trig Summer & Fall 2019 (at FIU)
- Trigonometry (Hybrid) Spring & Summer 2018 (at FIU)
- Pre-Calculus Fall 2017 & Spring 2018 (at FIU)
- Calculus I Fall 2017 (at FIU)
- Trigonometry Fall 2017 (at FIU)
- Trigonometry (Hybrid) Summer 2017 (at FIU)
- Trigonometry Fall 2016 & Spring 2017 (at FIU)
- Pre-Calculus Fall 2016 & Spring 2017 (at FIU)
- Discrete Mathematics Summer 2016 (at FIU)
- Trigonometry Fall 2015 & Spring 2016 (at FIU)
- Pre-Calculus Fall 2015 & Spring 2016 (at FIU)
- Differential Equations Summer 2015 (at CWRU)
- Calculus III Fall 2014 & Spring 2015 (at CWRU)
- Calculus for non-science majors Fall 2013 (at CWRU)
- Graduate Student Teaching Assistant 2008-2013  
Tutoring & grading various undergraduate and graduate courses

\* I was on parental leave in Fall 2018 and Spring 2019

\* I was on Professional Development Leave in Fall 2021

### **COURSE DESIGN:**

- Trigonometry (MAC 1114) in **Hybrid** format -2017
- Pre-calculus Algebra and Trigonometry (MAC 1147) in **Online** format -2019
- Pre-calculus Algebra and Trigonometry (MAC 1147) in **Hybrid** format -2019
- Calculus for Engineering Sequence (MAC 2281, 2282, and 2283) in **Hybrid** format-2020

- **Stretch section** for Pre-calculus Algebra and Trigonometry (MAC 1147) - 2021
- **Stretch section** for Calculus II (MAC 2312) - 2021
- Pre-calculus Algebra and Trigonometry (MAC 1147) with an Open Education Resource (OER) Book -2022-2023
- Calculus 1 (MAC 2311) with Chat GBT -2024
- Trigonometry (MAC 1114) in **Online** format -2024

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## SERVICE

- Organizing a Special Session **“Convexity, High-Dimensional Probability, and Applications”** at the **Mathematical Congress of the Americas 2025 (MCA 2025)**—taking place from **July 21 to 25, 2025, at the University of Miami.**
- **Served on the on the Gateway Award for Excellence in Teaching selection committee - Summer 2025.** Reviewed all applications and rated them.
- **Served as an External Evaluator for the Department of Mathematics at Norfolk State University April 2025.** I served as an External Evaluator for the Department of Mathematics at Norfolk State University in April 2025. I visited the campus and met with various stakeholders, which included: the program faculty, students, department chair, and provost. I also observed a few class sessions. In addition to that, I also submitted an extensive written report, based on my observations, to the Provost Office.
- **Served on the on the Gateway Award for Excellence in Teaching selection committee - Summer 2024.** Reviewed all applications and rated them.
- **Experience Committee in FIU’s 2030 Strategic Work Plan - Fall 2023-Spring 2024.** This committee was formed by the Provost’s Office. We worked on the core curriculum courses and made sure they aligned with the state requirements.
- **Organizing the 8<sup>th</sup> Faculty Innovations and Student Success Showcase (FISSS) Fall 2023 and Spring 2024.** I worked in the organizing committee and helped with the general set-up of the conference along with check-in process.
- **Experience Committee in FIU’s 2030 Strategic Work Plan Fall 2023-Spring 2024** This committee was formed by the President and Provost’s Offices to develop an agile and innovative strategic plan that will address the needs of our students, faculty, staff, and community.
- **Served in the General Education Review Ad hoc Workgroup -Fall 2023** This committee was formed by the Provost ‘s Office. We worked on the core curriculum courses and made sure they aligned with the state requirements.

- **Serve in Human Resources Committee Summer 2023 - Fall 2023**  
Read all applications for promotions (we had six faculty members this academic year), meet with committee members to discuss the files, demonstrate the files to the center faculty, and write letters to the center director for each applicant.
- **Organizing the 7<sup>th</sup> Faculty Innovations and Student Success Showcase (FISSS) Fall 2022 and Spring 2023.** I worked in the organizing committee to organize a panel about AI, ChatGPT, and their impact on teaching and learning.
- **Serve in Faculty Senate Student Success Committee Since Fall 2022**  
Working with faculty from various disciplines at FIU to find solutions to problems related to education and student success at FIU. Our job is to identify evidence-based strategies (pedagogic and practical) for promoting student learning and academic success and report to the Faculty Senate.
- **Serve as a Senator at the Faculty Senate since Fall 2021**  
My role is to discuss academic matters and general educational policies with the rest of the senate along with initiating, reviewing, evaluating and, recommending policies.
- **Served as a Senator at United Faculty of Florida (UFF-FIU) from Fall 2020 to Summer 2024**  
Attend training sessions, discuss local issues and, vote on policy  
Serve also as Legislative Affairs Chair and UFF- FEA Statewide Delegate since Fall 2022
- **Reviewer for the Journals Math Reviews and zbMATH** which provide brief synopses, and in some cases evaluations, of many articles in mathematics, statistics, and theoretical computer science.
- **Served in Teaching Evaluation Committee Spring 2022**  
Develop some guidelines for teaching contributions and evaluation
- **Serve as CASE Accessibility Faculty Liaison Fall 2021-Spring 2022**  
Work on accessibility issues identified in high enrollment gateway courses and in other courses enrolling DRC students in the math department, and work with student interns to fix those issues.
- **Serve as a Hybrid Faculty Fellow at the Center for the Advancement of Teaching Fall 2021-Spring 2022 and Spring-Summer 2024**  
Train faculty from various disciplines in these professional development workshops to design evidence-based hybrid classes.
- **Coordinator of Pre-Calc Alg and Trig (MAC 1147) Fall 2019 - Spring 2021**  
Organize weekly meetings with faculty, prepare departmental syllabus and common final exam, provide resources to support teaching and learning, use technology in classroom, and also maintain quality and consistency of instruction in multiple-sections.
- **Served in Hiring Committee Fall 2020 - Spring 2021**

Read all applications, meet with committee members and interview candidates

- **Served in Differential Assignment Policy Committee Fall 2019 - Spring 2020**

This committee was established to develop proposed departmental by-laws for discipline-aligned and equity-oriented research, service and teaching assignments for faculty members.

- **Coordinator of Trigonometry (MAC 1114) Fall 2016 - Summer 2019**

Organize weekly meetings with faculty, prepare departmental syllabus and common final exam, provide resources to support teaching and learning, use technology (like MyMathlab and I-clicker) in classroom, and also maintain quality and consistency of instruction in multiple-sections

- **Faculty Advisor of Turkish Student Association - Spring 2018**

- **Reviewer for Math Reviews and zbMATH**

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## GRADUATE COMMITTEE MEMBERSHIP

- Willian Neris Ph.D. in Teaching and Learning, FIU 03/2022 – Present.
- Shivanni Jagessar Ph.D. in Teaching and Learning, FIU 03/2023 – Present.
- Francisco Reyes Ph.D. in Applied Math, FIU 03/2024 – Present.

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## CONFERENCES

### Conference Organization

- Organizing a Special Session **“Convexity, High-Dimensional Probability, and Applications”** at the **Mathematical Congress of the Americas 2025 (MCA 2025)**—taking place from **July 21 to 25, 2025, at the University of Miami.**

### Invited/Delivered Talks

- Colloquium Talk, Florida International University April 2022  
"From Pinsker Type to Isoperimetric Type Inequalities for Log Concave Functions"
- Graduate Student Seminar, Florida International University November 2020  
“Functional affine surface area and related isoperimetric inequalities”
- American Mathematical Society Meeting, University of Florida November 2019  
“Isoperimetric, information theoretic, and Monge Ampere type inequalities”
- 34th Southeastern Analysis Meeting (SEAM), Georgia Tech March 2018  
“Isoperimetric and information theoretic inequalities for log concave functions”
- American Mathematical Society Meeting, University of Georgia March 2016  
"Mixed  $f$ -divergence and inequalities for log concave functions"
- Colloquium Talk, Florida International University October 2015  
"Divergence and Entropy inequalities for log concave functions"

- American Mathematical Society Meeting, San Francisco State University      October 2014  
"Mixed f-divergence and inequalities for log concave functions"
- Analysis Seminars, Kent State University      May 2014  
"Divergence and Entropy inequalities for log concave functions"
- American Mathematical Society Meeting, Washington University      October 2013  
"Divergence for s-concave and log concave functions"
- Asymptotic Geometric Analysis II      June 2013  
Euler International Mathematical Institute, St. Petersburg, Russia  
"Divergence for log concave functions"

### Conferences and Workshops

- The Teaching Professor Conference, Washington D.C., June 2025
- The Teaching Professor Conference, New Orleans, June 2024
- Calculus of Variations in Probability and Geometry, at IPAM-UCLA, Los Angeles, CA  
(Attended in person and served as session chair)      February 2022
- Hausdorff Trimester Seminars, "The Interplay between High-Dimensional Geometry  
and Probability" (attended virtually)  
Hausdorff Research Ins. for Mathematics, Bonn, Germany      January 2021 - April 2021
- School "Randomness online"(attended virtually)  
Euler Inter. Math. Inst., St. Petersburg, Russia      November 2020
- Sunshine State Teaching and Learning Conference, Daytona Beach, FL      January 2020
- In Mathematics Education Yesterday, Today, Tomorrow..., Kangaroo Mathematics,  
Nesin Math Village, Izmir, Turkey      April 2019
- Sunshine State Teaching and Learning Conference, St. Petersburg, FL      January 2018
- Quantum Information Theory at IHP, Paris, France      December 2017
- Introductory Workshop: phenomena in high dimensions  
at MSRI, Berkeley, CA      August 2017
- Redesign: Technology and Innovation in Math & English, Charleston, SC      March 2017
- Chairs +1 meeting, TPSE Math, College Park, Maryland      March 2017
- Teaching in the 21<sup>st</sup> Century, Sunshine State Teaching and Learning Conference  
St. Petersburg, FL      February 2017
- Information Theory and Concentration Phenomena, IMA, Minneapolis, MS      April 2015
- Joint Mathematics Meetings, San Antonio, TX      January 2015
- Interplay of convex geometry and Banach space theory, Banff, Canada      March 2013
- Informal analysis seminars, Kent State University      November 2012
- Invariants in convex geometry and Banach space theory, AIM, Palo Alto, CA      August 2012
- Workshop on Convexity and Asymptotic Geometric Analysis      April 2012  
at CRM and University of Montreal, Canada
- Informal analysis seminars, Kent State University      March 2012
- Perspectives in High Dimensions, Case Western Reserve University      August 2010

### Local Conferences and Workshops

- Gateway Inquiry Institute Workshop I and II, FIU April-May 2025
- Gateway Inquiry Institute Workshop I and II, FIU December 2024
- Gateway Inquiry Institute Workshop I and II, FIU May 2024
- Gateway Inquiry Institute Workshop I and II, FIU December 2023
- Gateway Inquiry Institute Workshop I and II, FIU May 2023
- Gateway Inquiry Institute Workshop I and II, FIU December 2022
- Gateway Inquiry Institute Workshop I and II, FIU May 2022
- Teaching with LAs: Designing Group-worthy Activities May 2021
- Gateway Inquiry Institute Workshop, FIU December 2020
- STRIDE Faculty Recruitment Workshop October 2020  
(STRIDE=Strategies and Tactics for Recruiting to Increase Diversity and Excellence)
- Series of Workshops by the LA Program for Synchronous and Asynchronous Learning with LAs April 2020
- Bystander Leadership Program Workshop September 2019
- Math Hybrid Initiative Workshop, FIU Summer 2017
- Provost's Hybrid Pilot Program, FIU Spring 2017
- International Conference on Geometry, Topology and Applications, FIU Jan, 2017
- Gateway Summer Institute Workshop, FIU May, 2016
- International Conference PDE, Complex Analysis, and Related Topics, FIU Jan, 2016

## Posters

- Poster presentation, the 2024 Teaching Professor Annual Conference, New Orleans, June 2024, "Designing an Inclusive Mathematics Course at No Cost to Students."
- Poster presentation, 8th Annual Faculty Innovations for Student Success Showcase, FIU, March 2024, "Designing an Inclusive Mathematics Course at No Cost to Students."
- Poster presentation, Quantum Information Theory, IHP, Paris, France December 2017  
"Entropy inequalities for log concave functions"
- Poster presentation, Information Theory and Concentration Phenomena April 2015  
IMA, Minneapolis, MS "Divergence for log concave functions"
- Poster presentation, Informal analysis seminars, Kent State University March 2014  
"Divergence for log concave functions"

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## TECHNICAL SKILLS

LATEX, MATLAB, MATHEMATICA, MYMATHLAB, IMATHAS