

Peter E. Francis

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Education

Stony Brook University

PHD IN MATHEMATICS (IN PROGRESS)

- Advisor: Evita Nestoridi
- Thesis: Limit Profiles in Separation Distance for Markov Chains

Stony Brook, NY

Sept. 2021 - May 2026 (Expected)

Gettysburg College

B.A. IN MATHEMATICS

- Major in Mathematics and Minor in Physics
- GPA: 4.25/4.33, Valedictorian

Gettysburg, PA

Sept. 2017 - May 2021

Publications

Secrets and Quantifiers (Logic)

Math Horizons, MAA Feb. 2021

Opponent Hand Estimation in the Game of Gin Rummy (Artificial Intelligence)

Proceedings of the AAAI, 35(17) Feb. 2021

Maximal Sizes of Weak $(2, 1)$ -Sum-Free Sets in Finite Abelian Groups (Add. Comb.)

Research Papers in Math., GBC May 2020

The Maximum Size of Weak (k, l) -Sum-Free Sets (Additive Combinatorics)

Research Papers in Math., GBC May 2019

Presentations

Math Department Alumn Homecoming Talk (Leading All the Way)

Gettysburg, PA Sept., 2024

Undergraduate Colloquium (Leading All the Way)

Stony Brook, NY Nov., 2023

Gettysburg Math Department Colloquium (Opponent Hand Estimation in the Game of Gin Rummy)

Gettysburg, PA Oct., 2020

Gettysburg Math Research Symposium (Max. Sizes of Weak $(2, 1)$ -Sum-Free Sets in Finite Abelian Groups)

Gettysburg, PA May, 2020

Gettysburg Math Research Symposium (The Maximum Size of Weak (k, l) -Sum-Free Sets)

Gettysburg, PA May, 2019

Other Projects

graphPlot (Python module that uses physics to find ideal plotting coordinates for nodes of graphs.)

Python

ifsFractals-py (Python module to generate fast fractals that are fixed points of iterated function systems.)

Python

Complex Function Plot (A web app that plots colorful complex function transformations.)

Javascript

IFS Fractals (A web tool for sensitivity investigation of iterated function system fractals.)

Javascript

Custom Julia Sets

Javascript

- A web tool for sensitivity investigation of iterated function system fractals. ([link](#))

Aug. 2022

Teaching Experience

Department of Mathematics, Stony Brook University

CALCULUS TEACHING ASSISTANT

- Teach recitation classes several times per once a week.
- Grade homeworks and exams.

Stony Brook, NY

Fall 2021 - PRESENT

Department of Mathematics, Gettysburg College

LINEAR ALGEBRA PEER LEARNING ASSOCIATE

- Wrote various Python projects and assist in teaching course material.

Gettysburg, PA

Jan. 2020 - Spring 2021

CALCULUS PEER LEARNING ASSOCIATE

- Assist Calculus II students in understanding concepts and course material.
- Teach regular class sessions once a week using my own prepared material.

Aug. 2019 - Spring 2021

CALCAID TUTOR

- Assist students in understanding concepts and course material at weekly review sessions.

Spring 2018, Fall 2018, Spring 2020

LINEAR ALGEBRA GRADER

- Graded weekly Homework from two class sections.

Spring 2019

L^AT_EX PEER LEARNING ASSOCIATE

- Held drop-in help sessions for typesetting.

Fall 2019 - Fall 2020

Skills

Programming Python, L^AT_EX, Java, MatLab, R, Sage

Web & Network Python (Flask, Unicorn), Javascript, HTML/CSS

Design & 3D Modeling Photography, Photoshop, Lightroom, Blender

Outdoors Backpacking, Canoeing, Wilderness Skills, PADI Certified Advanced SCUBA Diver

Martial Arts Tae Kwon Do

Honors & Awards

2021	Valedictorian , Gettysburg College Class of 2021	<i>Gettysburg, PA</i>
2021	Recipient , Henry W. A. Hanson Scholarship Award	<i>Gettysburg, PA</i>
2021	Recipient , Earl E. Ziegler Senior Mathematics Award	<i>Gettysburg, PA</i>
2020	Recipient , Earl E. Ziegler Junior Mathematics Award	<i>Gettysburg, PA</i>
2019-21	President , Pi Mu Epsilon, Mathematics Honor Society	<i>Gettysburg, PA</i>
2019, 20	Recipient , Paul Mugabi Problem-Solving Award in Mathematics	<i>Gettysburg, PA</i>
2018	Recipient , Dr. George R. Miller '19 and Dr. Richard T. Mara '46 First Year Student Prize in Physics	<i>Gettysburg, PA</i>
2017-21	Recipient , Dean's Honor List (8 semesters)	<i>Gettysburg, PA</i>
2017-21	Recipient , Lincoln Scholarship	<i>Gettysburg, PA</i>
2017	Member , National Honor Society	<i>Old Tappan, NJ</i>

Extracurricular Activity

College Life Office, Gettysburg College

ADVANCED TECHNICIAN

- Assisted in instruction of technicians.
- Operate and organize audio, lighting and other production equipment for large and small events.

Gettysburg, PA

Sept. 2017 - May 2021

Office of Communications and Marketing, Gettysburg College

PHOTOGRAPHY INTERN

- Shoot and edit portraits and pictures for a wide variety of events.

Gettysburg, PA

Jan. 2018 - May 2021