

Science Undergraduate Laboratory Internships (SULI)

Summer 2022 - Application for: Katelyn Alexis Thomas

APPLICANT PROFILE

General Applicant Information

First Name: Katelyn

Middle Name: Alexis

Last Name: Thomas

Previous Last Name(s):

Primary Email Address: katelyn.alexis.thomas@emory.edu

Alternate Email Address 1: katelyn@myhhprinting.com

Alternate Email Address 2:

ORCID: [0000-0002-2162-9911](https://orcid.org/0000-0002-2162-9911)

Current Address

Primary Phone Number: 817-559-9340

Alternate Phone Number:

Citizenship/Languages/Eligibility Information

I will be 18 years of age or older by the time the internship begins: Yes

Are you a U.S. Citizen? Yes

Science Undergraduate Laboratory Internships (SULI)

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EDUCATIONAL BACKGROUND

Academic Information

Are you currently attending a community college or 2-year college?

No

Current academic status:

Junior

If you are selected as a participant in this DOE program, will you receive academic credit from your university/college for participating?

No

Undergraduate Institution Information

College/University Country: United States and U.S. Territories

College/University State/Province/Territory:

Georgia

College/University Name: Emory University

College/University Address: 201 Dowman Dr

College/University City: Atlanta

College/University Zip Code: 30322-0001

Expected/Declared Major: Physical Sciences - Astronomy - Astrophysics

Minor and/or Concentration Expected/Declared:

Mathematics

Expected Degree From This College/University:

Bachelor's

Expected/Completed Graduation Date:

May / 2023

Transcript: Thomas_Katelyn_Transcript.pdf

Does this institution provide grades? Yes

GPA Scale: 4.0

Total Attempted Credits: 75.00

Total Earned Credits: 75.00

Total Quality Points: 250.30

GPA: 3.34

Science Undergraduate Laboratory Internships (SULI)

Summer 2022 - Application for: Katelyn Alexis Thomas

Science, Technology, Engineering and Mathematics (STEM) Courses

Course Title: Advanced Lab

Course Number: PHYS 444W

Enrollment Status: Recently Completed

Course Title: Astrophysics I

Course Number: PHYS 311

Enrollment Status: Currently Enrolled

Course Title: Astrophysics II

Course Number: PHYS 312

Enrollment Status: Recently Completed

Course Title: Calculus I

Course Number: MATH 111

Enrollment Status: Recently Completed

Course Title: Calculus II

Course Number: MATH 112

Enrollment Status: Recently Completed

Course Title: Calculus III

Course Number: MATH 211

Enrollment Status: Recently Completed

Course Title: Classical Mechanics

Course Number: PHYS 361

Enrollment Status: Recently Completed

Course Title: Computational Modeling

Course Number: PHYS 212

Enrollment Status: Planning to Enroll

Course Title: Differential Equations

Course Number: MATH 212

Enrollment Status: Recently Completed

Course Title: Electricity & Magnetism

Course Number: PHYS 365

Science Undergraduate Laboratory Internships (SULI)

Summer 2022 - Application for: Katelyn Alexis Thomas

Enrollment Status:	Currently Enrolled
Course Title:	Linear Algebra
Course Number:	MATH 221
Enrollment Status:	Planning to Enroll
Course Title:	Math for Engineering
Course Number:	PHYS 220
Enrollment Status:	Recently Completed
Course Title:	Mathematical Statistics I
Course Number:	MATH 361
Enrollment Status:	Recently Completed
Course Title:	Mathematical Statistics II
Course Number:	MATH 362
Enrollment Status:	Currently Enrolled
Course Title:	Modern Physics
Course Number:	PHYS 253
Enrollment Status:	Recently Completed
Course Title:	Physics I
Course Number:	PHYS 151
Enrollment Status:	Recently Completed
Course Title:	Physics II
Course Number:	PHYS 152
Enrollment Status:	Recently Completed
Course Title:	Quantum Mechanics
Course Number:	PHYS 461
Enrollment Status:	Planning to Enroll
Course Title:	Thermodynamics & Statistical Physics
Course Number:	PHYS 421
Enrollment Status:	Planning to Enroll
Course Title:	Undergraduate Research

Science Undergraduate Laboratory Internships (SULI)

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Course Number:	SIRE 299R
Enrollment Status:	Currently Enrolled
Awards or Honors	
Award Title:	Scholar Athlete Award
Month & Year Received:	May / 2019
Awarding Institution:	John Newcombe Tennis Academy
Award Title:	All UAA Academic Award
Month & Year Received:	May / 2020
Awarding Institution:	NCAA / Emory University
Award Title:	Scholar Athlete Award
Month & Year Received:	May / 2021
Awarding Institution:	NCAA / Emory University
High School Graduation or GED	
Date of High School Graduation or GED:	May / 2019
Country:	United States
City:	Houston
State/Province/Territory:	TX

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WORK EXPERIENCE & SKILLS

Science Undergraduate Laboratory Internships (SULI)

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Work Experience	
Name of Place of Employment or Activity:	CoronaNet Research Assistant
Dates of Employment or Activity:	From 5/17/2021 To 8/16/2021
Hours Per Week:	15.0
Primary Duties:	Research Assistant
Tasks Performed:	The CoronaNet Research Project is an international endeavor to learn from the COVID-19 pandemic so we can better prepare ourselves for public health emergencies in the future. I was able to join researchers worldwide in compiling and analyzing government policies across the globe to determine how their course of action and timeline affected the spread of COVID-19. I was also selected to pilot their Data Integration Team which set the stage for multiple databases to be merged artificially through machine learning.
Name of Place of Employment or Activity:	Alleva Market Researcher
Dates of Employment or Activity:	From 5/17/2021 To Present
Hours Per Week:	20.0
Primary Duties:	Market Research
Tasks Performed:	I conduct market research for Alleva, an electronic medical record (EMR) software company based in Southern California. This involves researching health facilities and analyzing factors such as levels of care, accepted payment methods, funding, number of facilities, and the size of said facilities to determine their compatibility with the software Alleva offers. I work with Excel and online health center databases daily.
Name of Place of Employment or Activity:	GoPeer Tutor
Dates of Employment or Activity:	From 2/1/2021 To Present
Hours Per Week:	10.0
Primary Duties:	Teaching
Tasks Performed:	I am currently working as a certified GoPeer tutor. Mostly, I work with students who need help with high school math and physics, but I have also taught reading comprehension and writing skills.
Name of Place of Employment or Activity:	Emory University Undergraduate Research Assistant
Dates of Employment or Activity:	From 1/1/2021 To Present
Hours Per Week:	12.0
Primary Duties:	Research Assistant
Tasks Performed:	I am working under and being mentored by Dr. Erin Bonning. Currently, she has me analyzing the spectra of blazars to identify orphan flares that will help us learn more about the physical characteristics of blackholes. More specifically, one project is comparing the spectra of FSRQ and BL Lac objects while the other is searching for quasi-periodic oscillations. Recently, we have incorporated some basic python into these projects as well. I have been approved to continue this research with her through at least my junior year (2021-2022 school year).
Name of Place of Employment or Activity:	John Newcombe Tennis Academy Tutor
Dates of Employment or Activity:	From 8/14/2017 To 5/15/2019
Hours Per Week:	10.0
Primary Duties:	Clarifying concepts in math and science to students. Occasionally helping on editing essay drafts.

Science Undergraduate Laboratory Internships (SULI)

Summer 2022 - Application for: Katelyn Alexis Thomas

Tasks Performed:	Tutoring
Name of Place of Employment or Activity:	H&H Printing Assistant
Dates of Employment or Activity:	From 8/15/2016 To 5/15/2019
Hours Per Week:	5.0
Primary Duties:	Assistant
Tasks Performed:	When in-person, I was tasked with filing paperwork, editing for customers, some typesetting, working the front desk, and general cleaning. However, in a virtual capacity I have been limited to proofreading and typesetting.
Professional Associations	
Are you a member of any professional organizations?	No
Computer Skills	
Computer related skills:	Python - Basic skill level Excel - Proficient
Laboratory/Technical Skills	
Experience with advanced laboratory techniques or equipment:	<p>In advanced lab (PHYS 444W) last semester, we worked with an atomic force microscope for several weeks analyzing various samples. We also were given the opportunity to study an exoplanet orbiting a binary star system in the observatory at Emory University. In this project, we were tasked with data reduction, calculating the orbital period, and working with the telescope (under supervision). Lastly, in this lab we completed a project in which we programmed Arduino with Python such that we could control a spectrometer and observe a sodium doublet.</p> <p>I am working under and being mentored by Dr. Erin Bonning. Currently, she has me analyzing the spectra of blazars to identify orphan flares that will help us learn more about the physical characteristics of blackholes. More specifically, one project is comparing the spectra of FSRQ and BL Lac objects while the other is searching for quasi-periodic oscillations. Recently, we have incorporated some basic python into these projects as well. I have been approved to continue this research with her through at least my junior year (2021-2022 school year).</p>

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Summer 2022 - Application for: Katelyn Alexis Thomas

PROGRAM INFORMATION

Eligibility

Have you previously participated in 2
SULI appointments? No

Previous DOE Internship/Fellowship Experience

Have you ever had an
internship/fellowship with the
Department of Energy or any of its
National Laboratories? No

Availability

What is the earliest date you can
begin your internship? 5/9/2022

When do you need to complete your
internship? 8/22/2022

First Choice Host DOE Laboratory

DOE Laboratory: Oak Ridge National Laboratory (ORNL)

First Choice Research Area: Accelerator Physics/Science

Second Choice Research Area: Astronomy/Astrophysics

Third Choice Research Area: Quantum Communication

Second Choice Host DOE Laboratory

DOE Laboratory: Thomas Jefferson National Accelerator Facility (TJNAF)

First Choice Research Area: Accelerator Physics/Science

Second Choice Research Area: High Energy Physics

Third Choice Research Area: Nuclear Physics

Relatives Employed at DOE Laboratories

Are you a relative of an employee at
the proposed host DOE laboratories? No

Science Undergraduate Laboratory Internships (SULI)

Summer 2022 - Application for: Katelyn Alexis Thomas

ESSAYS

Research Experience: Emory University Physics Research Assistant

I am working under and being mentored by Dr. Erin Bonning. Currently, she has me analyzing the spectra of blazars to identify orphan flares that will help us learn more about the physical characteristics of blackholes. More specifically, one project is comparing the spectra of FSRQ and BL Lac objects while the other is searching for quasi-periodic oscillations. Recently, we have incorporated some basic python into these projects as well. I have been approved to continue this research with her through at least my junior year (2021-2022 school year). These projects are being completed with a moderate-high level of independence. Dr. Bonning and I meet once weekly in which she evaluates my work from the previous week and we determine the next steps in the project. I leave the meeting with a couple of tasks to finish before our next session, which I complete on my own based on our discussion.

CoronaNet Research Assistant

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Alleva Market Research

I conduct market research for Alleva, an electronic medical record (EMR) software company based in Southern California. This involves researching health facilities and analyzing factors such as levels of care, accepted payment methods, funding, number of facilities, and the size of said facilities to determine their compatibility with the software Alleva offers. I work with Excel and online health center databases daily. After the initial training process, this research has been conducted independently. I am in charge of my own market research and inputting data entries with no help from supervisors unless I request clarification.

Research Interests:

Currently, my interests revolve around astrophysics and particle physics. Since I have been presented the opportunity to conduct astrophysics research at Emory, I would love the chance to gain some experience in particle physics. My goal is to acquire enough diverse research experience so that I can enter graduate school with confidence that I have found the right subfield for me! My desire to research particle physics brought me to choose the Oak Ridge and Thomas Jefferson National Labs. However, I have thoroughly enjoyed my time in theoretical astrophysics so I would also be excited to work a new project along these lines as well.

Personal Experience:

I chose astronomy as my sub-field of study since my fascination with space is what piqued my interest and lead me to declaring as a physics major. I adored my grandfather and when I was a freshman in high school he found a Stephen Hawking book which sent us down a rabbit hole of questions which only catalyzed more wonder in both of us. After that, I began to watching science channel every morning during my breakfast with series like *Space's Deepest Secrets*, *The Planets and Beyond*, and *How the Universe Works*. As I am getting out of the introductory courses, into my electives and presented with research opportunities, I find myself studying many of the topics that were dramatized in those series and books. I always watched in awe as the commentary spoke about the unknowns of black holes and now, I am given the opportunity to directly analyze the spectra of blazars and contribute to understanding their physical properties. Now I am finally getting the opportunity to learn outside of Hollywood and be introduced to these phenomena through academia!

I am aware that my transcript may not reflect this love of learning as there are several low grades in the subject which I claim to have a passion for. However, there are several factors contributing to these low scores which I do not use as excuses, I certainly could've handled things better, but they nonetheless bring context to these scores. I spent my first two years at Emory playing for the varsity tennis team. This turned into a less than ideal situation for me which I will not dive into, however, I ended up losing a lot of study time. I was running on hardly any sleep and was not able to prioritize my studies. In addition to this my

Science Undergraduate Laboratory Internships (SULI)

Summer 2022 - Application for: Katelyn Alexis Thomas

grandmother passed during the pandemic because some of my family members refused to wear masks. My grandfather's dementia rapidly worsened after her passing, so my dad has become his full-time caretaker. We almost lost our family business and did lose most of my college fund since several relatives have stolen from, threatened and/or assaulted me and my father in the past two years. I know everyone has fallen on tough times these last couple years and perhaps I could've handled this adversity better. However, I believe they serve as proof that I genuinely want to succeed in this field and am willing to put in the effort. Though I may not have the best GPA, I assure you that I am eager to learn and will prove that with my work ethic.

Professional Goals: I'd be grateful with any opportunity to work in a lab because just general experience will prepare me for grad school and bring me closer to fully understanding my academic interests. Everything I do is striving towards being able to make a career in a research lab. With that, I not only need lab experience, but will genuinely enjoy my time as a research assistant because it gives me a sneak peek into my dream job!

RECOMMENDATIONS

Recommendation 1: **First Name:** Alissa
Last Name: Bans
Email: alissa.sue.bans@emory.edu
Status: Received 1/10/2022

Recommendation 2: **First Name:** Erin
Last Name: Bonning
Email: erin.bonning@emory.edu
Status: Received 1/6/2022

**Advising Document - Do Not Disseminate**

Name: Katelyn Alexis Thomas
Student ID: 2373113

Institution Info: Emory University
 Student Address: 3804 Country Ln
 Granbury, TX 76048-6269
 Print Date: 12/22/2021

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Test Credits

Test Credits Applied Toward Liberal Arts & Sciences Program

Advanced Placement Exam AP Psychology

01/01/2017 5.00

Transferred to Term Fall 2019 as

PSYC 111 Intro To Psyc II

3.000 T

Beginning of Academic Record**Fall 2019**

Program: Liberal Arts & Sciences
 Plan: Undeclared - Arts & Sciences Major

<u>Course</u>		<u>Description</u>	<u>Attempted</u>	<u>Earned</u>	<u>Grade</u>	<u>Points</u>
ANCMED	101	Intro to Anc't Med Societies	3.000	3.000	A	12.000
ENG	181	Writing About Literature	3.000	3.000	A	12.000
HLTH	100	It's Your Health	1.000	1.000	A-	3.700
MATH	111	Calculus I	3.000	3.000	B+	9.900
PACE	101	Pre-major Advising Connection	1.000	1.000	S	0.000
PHYS	151	Phys for Sci & Engin I w/Lab	4.000	4.000	C-	6.800

			<u>Attempted</u>	<u>Earned</u>	<u>GPA Units</u>	<u>Points</u>
Term GPA	3.171	Term Totals	15.000	15.000	14.000	44.400
Transfer Term GPA		Transfer Totals	3.000	3.000	0.000	0.000
Combined GPA	3.171	Comb Totals	18.000	18.000	14.000	44.400
Cum GPA	3.171	Cum Totals	15.000	15.000	14.000	44.400
Transfer Cum GPA		Transfer Totals	3.000	3.000	0.000	0.000
Combined Cum GPA	3.171	Comb Totals	18.000	18.000	14.000	44.400

Spring 2020

Program: Liberal Arts & Sciences
 Plan: Undeclared - Arts & Sciences Major

Semester significantly disrupted starting 3/11/2020 due to the Coronavirus COVID-19 outbreak. Some courses display Satisfactory/Unsatisfactory grades rather than standard letter grades, and arrangements were made for these courses to meet graduation requirements.

<u>Course</u>		<u>Description</u>	<u>Attempted</u>	<u>Earned</u>	<u>Grade</u>	<u>Points</u>
ENG	389W	Special Topics:Literature	4.000	4.000	B+	13.200
Req Designation:		Humanities, Arts, Performance with Writing				
Course Topic:		Planetary Futures				
GER	190	Freshman Seminar	3.000	3.000	A	12.000
Course Topic:		Nostalgia &Alts. in Mod.Jewish				
MATH	112	Calculus II	3.000	3.000	S	0.000
PE	406R	PPF: Varsity Women's Tennis	1.000	1.000	A	4.000
PHYS	152	Phys for Sci & Engin II W/Lab	4.000	4.000	S	0.000

			<u>Attempted</u>	<u>Earned</u>	<u>GPA Units</u>	<u>Points</u>
Term GPA	3.650	Term Totals	15.000	15.000	8.000	29.200
Transfer Term GPA		Transfer Totals	0.000	0.000	0.000	0.000
Combined GPA	3.650	Comb Totals	15.000	15.000	8.000	29.200



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Name: Katelyn Alexis Thomas
Student ID: 2373113

Cum GPA	3.345	Cum Totals	30.000	30.000	22.000	73.600
Transfer Cum GPA		Transfer Totals	3.000	3.000	0.000	0.000
Combined Cum GPA	3.345	Comb Totals	33.000	33.000	22.000	73.600

Summer 2020

Program: Liberal Arts & Sciences
Plan: Physics and Astronomy Major Major

Course		Description	Attempted	Earned	Grade	Points
LAT	110	Intensive Latin	6.000	6.000	A	24.000

Term GPA	4.000	Term Totals	6.000	6.000	6.000	24.000
Transfer Term GPA		Transfer Totals	0.000	0.000	0.000	0.000

Combined GPA	4.000	Comb Totals	6.000	6.000	6.000	24.000
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Cum GPA	3.486	Cum Totals	36.000	36.000	28.000	97.600
Transfer Cum GPA		Transfer Totals	3.000	3.000	0.000	0.000
Combined Cum GPA	3.486	Comb Totals	39.000	39.000	28.000	97.600

Fall 2020

Program: Liberal Arts & Sciences
Plan: Physics and Astronomy Major Major

Course		Description	Attempted	Earned	Grade	Points
ANT	101	Introduction to Anthropology	3.000	3.000	A	12.000
LACS	101	Intro To Lat American Studies	3.000	3.000	A	12.000
MATH	211	Adv Calculus (Multivariable)	3.000	3.000	C-	5.100
PHYS	220	Math Methods for Sci & Engin	3.000	3.000	C+	6.900
PHYS	253	Modern Physics With Laboratory	4.000	4.000	B	12.000
REL	270	Special Topics in Religion	3.000	3.000	A	12.000
Course Topic:		Sacred Drugs				

Term GPA	3.158	Term Totals	19.000	19.000	19.000	60.000
Transfer Term GPA		Transfer Totals	0.000	0.000	0.000	0.000

Combined GPA	3.158	Comb Totals	19.000	19.000	19.000	60.000
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Cum GPA	3.353	Cum Totals	55.000	55.000	47.000	157.600
Transfer Cum GPA		Transfer Totals	3.000	3.000	0.000	0.000
Combined Cum GPA	3.353	Comb Totals	58.000	58.000	47.000	157.600

Spring 2021

Program: Liberal Arts & Sciences
Plan: Physics and Astronomy Major Major
Plan: Mathematics, Applied Minor Minor

Course		Description	Attempted	Earned	Grade	Points
MATH	212	Differential Equations	3.000	3.000	C	6.000
PE	406R	PPF: Varsity Women's Tennis	1.000	1.000	A	4.000
PHYS	312	Astrophysics II with Lab	4.000	4.000	B-	10.800
PHYS	361	Classical Mechanics	3.000	3.000	B	9.000
REL	209	Hist of Religions In America	3.000	3.000	A	12.000

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			<u>Attempted</u>	<u>Earned</u>	<u>GPA Units</u>	<u>Points</u>
Term GPA	2.986	Term Totals	14.000	14.000	14.000	41.800
Transfer Term GPA		Transfer Totals	0.000	0.000	0.000	0.000
Combined GPA	2.986	Comb Totals	14.000	14.000	14.000	41.800
Cum GPA	3.269	Cum Totals	69.000	69.000	61.000	199.400
Transfer Cum GPA		Transfer Totals	3.000	3.000	0.000	0.000
Combined Cum GPA	3.269	Comb Totals	72.000	72.000	61.000	199.400

Fall 2021

Program:	Liberal Arts & Sciences					
Plan:	Physics and Astronomy Major Major					
Plan:	Mathematics Minor Minor					
<u>Course</u>		<u>Description</u>	<u>Attempted</u>	<u>Earned</u>	<u>Grade</u>	<u>Points</u>
MATH	361	Mathematical Statistics I	3.000	3.000	B+	9.900
PHYS	444W	Adv Undergraduate Laboratory	5.000	5.000	A	20.000
Req Designation:		Science, Nature, & Technology Lab with Writing				
PSYC	210	Adult Abnormal Behavior	3.000	3.000	B	9.000
REL	270	Special Topics in Religion	3.000	3.000	A	12.000
Course Topic:		Jainism:Religion ofNonviolence				
SIRE	299R	SIRE Research Partner Program	4.000	4.000	S	0.000
			<u>Attempted</u>	<u>Earned</u>	<u>GPA Units</u>	<u>Points</u>
Term GPA	3.636	Term Totals	18.000	18.000	14.000	50.900
Transfer Term GPA		Transfer Totals	0.000	0.000	0.000	0.000
Combined GPA	3.636	Comb Totals	18.000	18.000	14.000	50.900
Cum GPA	3.337	Cum Totals	87.000	87.000	75.000	250.300
Transfer Cum GPA		Transfer Totals	3.000	3.000	0.000	0.000
Combined Cum GPA	3.337	Comb Totals	90.000	90.000	75.000	250.300

Spring 2022

Program:	Liberal Arts & Sciences					
Plan:	Physics and Astronomy Major Major					
Plan:	Mathematics Minor Minor					
<u>Course</u>		<u>Description</u>	<u>Attempted</u>	<u>Earned</u>	<u>Grade</u>	<u>Points</u>
MATH	362	Mathematical Statistics II	3.000	0.000		0.000
PHYS	311	Astrophysics I with Laboratory	4.000	0.000		0.000
PHYS	365	Electricity and Magnetism	3.000	0.000		0.000
REL	270	Special Topics in Religion	3.000	0.000		0.000
Course Topic:		Is Yoga Religious?				
REL	322	Religion & Sexuality	3.000	0.000		0.000
			<u>Attempted</u>	<u>Earned</u>	<u>GPA Units</u>	<u>Points</u>
Term GPA	0.000	Term Totals	16.000	0.000	0.000	0.000
Transfer Term GPA		Transfer Totals	0.000	0.000	0.000	0.000
Combined GPA	0.000	Comb Totals	16.000	0.000	0.000	0.000
Cum GPA	3.337	Cum Totals	103.000	87.000	75.000	250.300
Transfer Cum GPA		Transfer Totals	3.000	3.000	0.000	0.000
Combined Cum GPA	3.337	Comb Totals	106.000	90.000	75.000	250.300



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Undergraduate Emory College Career Totals

Cum GPA:	3.337	Cum Totals	103.000	87.000	75.000	250.300
Transfer Cum GPA		Transfer Totals	3.000	3.000	0.000	0.000
Combined Cum GPA	3.337	Comb Totals	106.000	90.000	75.000	250.300

End of Advising Document - Do Not Disseminate

SULI PROGRAM APPLICATION RECOMMENDATION FOR KATELYN ALEXIS THOMAS

Recommender Contact Information

- **First Name:** Erin
- **Last Name:** Bonning
- **Title:** Senior Lecturer
- **Department:** Physics
- **Institution/Organization:** Emory University
- **Telephone:**
- **Email:** erin.bonning@emory.edu

Applicant Information

Association

Describe your relationship to the applicant, including how long you've known the applicant, where, and in what capacity.

I have known Katelyn since Fall 2021, when she was a student in my Modern Physics course. Based on her work in that course and enthusiasm for astrophysics, I accepted Katelyn as an informal research student for the Spring 2021 semester. We have been working since then on a project to analyze data from a class of sources called *blazars* - supermassive black holes that power highly relativistic jets of energetic particles in other galaxies. Katelyn's work so far has focused on identifying a set of sources showing individual flaring episodes and others with potential long-term variability that can be further analyzed in order to address these questions.

Applicant Comments

Please provide substantive comments about the applicant's education, training, aptitude, or promise relevant to the SULI program. Include any relevant additional detail or perspective regarding the applicant's research experience or equivalent experience on complex projects, including the level of independence or other factors that would contribute to the applicant's ability to make an excellent contribution to the SULI program.

Katelyn is an extremely quick study. She came in knowing very little about black holes or astronomical data, and enthusiastically dove into the literature, generating lists of questions, possible sources of study, and ideas for research projects. We have explored both data analysis as well as a possible computational modeling problem for future work. Having mastered some aspects of observational astronomy in her first semester with me, she went on to expand her rudimentary Python skills during the fall 2021 semester. Together with a fellow research student, they carried out a set of projects in an astrophysics-based tutorial (<https://prappleizer.github.io/index.html>). From this self-study she became familiar with a number of data analysis techniques and improved her abilities in using Python to solve scientific problems. At the moment, she is creating Lomb-Scargle periodograms to search for long-term variability in blazars. She has done this work completely independently, needing only occasional guidance and pointers as she is working. This shows that she has the ability to do independent work and to develop the necessary skills for a given project.

Applicant Rating

In comparison to other undergraduate students, please rate the applicant relative to his/her peers on the following qualifications:

	Do Not Know	Below Average	Average	Above Average	Superior
Analytical and Mathematical				X	
Experimental Research					X
Overall Academic				X	
Initiative and Self Reliance					X
Motivation toward Scientific Career					X
Originality of Thought				X	
Emotional Maturity					X
Ability to Work with Others					X
Potential for Leadership					X
Oral Communication Skills					X
Written Communication Skills					X

SULI PROGRAM APPLICATION RECOMMENDATION FOR KATELYN ALEXIS THOMAS

Recommender Contact Information

- **First Name:** Alissa
- **Last Name:** Bans
- **Title:** Dr.
- **Department:** Physics
- **Institution/Organization:** Emory University
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Applicant Information

Association

Describe your relationship to the applicant, including how long you've known the applicant, where, and in what capacity.

I've known Katelyn since Spring of 2020 when she declared her physics & astronomy major and I was assigned to be her major advisor. Aside from our advising meetings, I also got to know Katelyn fairly well when she was a student in my Astrophysics II course at Emory in Spring 2021.

Applicant Comments

Please provide substantive comments about the applicant's education, training, aptitude, or promise relevant to the SULI program. Include any relevant additional detail or perspective regarding the applicant's research experience or equivalent experience on complex projects, including the level of independence or other factors that would contribute to the applicant's ability to make an excellent contribution to the SULI program.

Technically I first communicated with Katelyn even before she was officially my advisee; she reached out to me as an incoming freshman wondering about the possibility of getting into one of my intro astronomy classes (which was full at the time). While the class ultimately didn't fit into her busy schedule, even before she was at Emory, Katelyn was excited to study physics & astronomy. I remember at the time she was most concerned about trying to find a spot in the version of the class that had lab, not because this was at all a requirement for the major, but simply because "lab was [her] favorite part".

Normally getting advisees to make appointments with me can be challenging, but Katelyn is a happy exception. She frequently reached out to discuss not just her upcoming class schedule, but also what classes she could take first to best prepare her for research experiences. In fact, I don't believe there's a single meeting we've had where Katelyn hasn't in some way asked questions about undergraduate research. Katelyn is extremely motivated to pursue research experiences, perhaps more so than any undergraduate I've known.

My impression of Katelyn as a student is that she is very bright, but is still working on building up her academic skillset. When she took Astrophysics II she not only was at a disadvantage from not having a lot of background knowledge of astronomy (from the intro level course), but also her math preparation was slightly below average. That said, Katelyn excelled at other elements of the course, including lab work and the end of the semester research project. For the course research project, students were encouraged to work in small groups and collaborate with their peers, but still have their own independent project design. Kaitlyn did work with another student in the course which nicely demonstrated her ability to work well in a team. Additionally, I was impressed with how Kaitlyn's

and her teammate’s experimental designs (using GAIA space telescope data to do star counting experiments) were complimentary, but ultimately independent efforts. Kaitlyn has also shown an aptitude for writing, the short report she turned in about her project at the end of the semester was one of the better written ones.

While I haven’t officially worked with Kaitlyn as a research student, she has worked on a short research project with a colleague of mine and I believe a summer internship via the SULI program is the right fit for her and that she would ultimately be successful. In her junior year now, she is already showing promising improvements grade-wise in her core math and physics courses, and has done outstandingly in our intensive advanced lab undergraduate course that she took last semester (most students take this course their senior year, but I imagine Katelyn was too enthused about the course to wait). She’s clearly motivated to get some hands-on experience in a lab setting and already showing signs of thriving in such an environment. I strongly recommend her for the SULI program, and hope you seriously consider her application.

Applicant Rating

In comparison to other undergraduate students, please rate the applicant relative to his/her peers on the following qualifications:

	Do Not Know	Below Average	Average	Above Average	Superior
Analytical and Mathematical			X		
Experimental Research	X				
Overall Academic			X		
Initiative and Self Reliance				X	
Motivation toward Scientific Career					X
Originality of Thought				X	
Emotional Maturity				X	
Ability to Work with Others				X	
Potential for Leadership				X	
Oral Communication Skills				X	
Written Communication Skills				X	