

Science Undergraduate Laboratory Internships (SULI)

Summer 2022 - Application for: Eric Scheuermann

APPLICANT PROFILE

General Applicant Information

First Name: Eric

Middle Name:

Last Name: Scheuermann

Previous Last Name(s):

Primary Email Address: eric.scheuermann@uconn.edu

Alternate Email Address 1: elizabethscheuermann2@gmail.com

Alternate Email Address 2:

ORCID: [0000-0002-3561-8607](https://orcid.org/0000-0002-3561-8607)

Current Address

Primary Phone Number: 860-313-8192

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

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EDUCATIONAL BACKGROUND

Academic Information

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

No

Current academic status:

Sophomore

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:

Connecticut

College/University Name: University of Connecticut

College/University Address: 233 Glenbrook Rd, Storrs, CT 06269

College/University City: Storrs

College/University Zip Code: 06269-0001

Expected/Declared Major: Physical Sciences - Physics

Expected Degree From This College/University:

Bachelor's

Expected/Completed Graduation Date:

May / 2022

Transcript: Transcript Dec 2021.pdf

Does this institution provide grades? Yes

GPA Scale: 4.0

Total Attempted Credits: 66.00

Total Earned Credits: 66.00

Total Quality Points: 233.80

GPA: 3.54

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Science, Technology, Engineering and Mathematics (STEM) Courses

Course Title: Differential Geometry

Course Number: MATH 3370

Enrollment Status: Recently Completed

Course Title: Electricity and Magnetism

Course Number: PHYS 3201

Enrollment Status: Recently Completed

Course Title: Electricity and Magnetism 2

Course Number: PHYS 3202

Enrollment Status: Currently Enrolled

Course Title: Electronics

Course Number: PHYS 3150

Enrollment Status: Currently Enrolled

Course Title: Quantum Mechanics

Course Number: PHYS 3401

Enrollment Status: Recently Completed

Course Title: Quantum Mechanics 1

Course Number: PHYS 5401

Enrollment Status: Currently Enrolled

Course Title: Research Thesis in Physics

Course Number: PHYS 4096W

Enrollment Status: Currently Enrolled

Course Title: Statistical and Thermal Physics

Course Number: PHYS 3300

Enrollment Status: Currently Enrolled

Course Title: Techniques of Modern Astrophysics

Course Number: PHYS 2702

Enrollment Status: Currently Enrolled

Course Title: Theoretical Mechanics

Course Number: PHYS 5201

Science Undergraduate Laboratory Internships (SULI)

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Enrollment Status: Recently Completed

Awards or Honors

Award Title: Honors Graduate

Month & Year Received: June / 2020

Awarding Institution: Wethersfield High School

Award Title: Sigma Pi Sigma

Month & Year Received: December / 2021

Awarding Institution: University of Connecticut

Award Title: Honors Scholar

Month & Year Received: September / 2020

Awarding Institution: University of Connecticut

High School Graduation or GED

Date of High School Graduation or GED: June / 2020

Country: United States

City: Wethersfield

State/Province/Territory: CT

Science Undergraduate Laboratory Internships (SULI)

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WORK EXPERIENCE & SKILLS

Professional Associations

Are you a member of any
professional organizations?

Yes

Professional associations you are
affiliated with:

American Physical Society (APS), Sigma Pi Sigma

Computer Skills

Computer related skills:

Python: Intermediate
LaTeX: Intermediate/Advanced
Mathematica: Introductory
MatLab: Intermediate

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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? 5/20/2022

When do you need to complete your
internship? 8/25/2022

First Choice Host DOE Laboratory

DOE Laboratory: Fermi National Accelerator Laboratory (FNAL)

First Choice Research Area: Mathematics

Second Choice Research Area: Accelerator Physics/Science

Third Choice Research Area: High Energy Physics

Second Choice Host DOE Laboratory

DOE Laboratory: Thomas Jefferson National Accelerator Facility (TJNAF)

First Choice Research Area: Accelerator Physics/Science

Second Choice Research Area: Mathematics

Third Choice Research Area: High Energy 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)

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ESSAYS

Research Experience:	<p>My primary research experience has been for an honor's thesis with Professor George Gibson at the University of Connecticut. The thesis is on the topic of numerical analysis and simulation of Perturbations in Quantum systems. To explore these topics I have written code for PDE solvers using methods such as the split-operator method, finite element method, and methods involving predetermined basis functions. The culmination of the thesis will be a paper analyzing numerical properties such as the stability of solutions and runtime. The method we've used in learning about this material is to first read up on the relevant numerical method and then to write pseudo-code and Python code to implement it. Additionally, Professor George Gibson occasionally provides code from his own simulations in MatLab as a template for me to build code off of. As we continue this thesis into the Spring Semester we hope to develop a repertoire of quintessential Quantum Systems that I can model using the PDE solvers. These systems will be the primary way we analyze the aforementioned numerical methods.</p> <p>In tandem to the Honor's thesis, I have pursued informal research for an Honor's course in Differential Geometry. I selected two papers on the topics of Riemannian Geometry and wrote presentations on them for Professor Matthew Badger. The first paper was on the topic of Jacobi Fields and a variational approach to the Jacobi Field equation. The second paper was on the topic of spectral geometry and finding the eigenvalues for a class of differential operators on a Riemannian Manifold. The presentations weren't of publishable quality or rigour however they served as thorough summaries of the relevant papers and as an elevation of the Differential Geometry course to Honor's level. These two reviews were done almost entirely independently as I selected the papers and wrote the presentations without aid.</p>
Research Interests:	<p>I chose the FermiLab and Thomas Jefferson Accelerator Laboratories mainly because I have a fascination with accelerators in general. Seeing results from the Large Hadron Collider at CERN, for example, motivates me to think accelerator physics is on the frontier of modern physics. The primary reason I chose FermiLab and the Thomas Jefferson Accelerator Laboratories specifically is because they have an established reputation in the specific field of Accelerator Physics, as compared to the other laboratories that have more general and open programs (from my understanding). I feel this makes them a perfect entry point into the research I personally want to pursue in the future.</p> <p>In line with my thesis, I am interested in doing research at the accelerator laboratories that focuses on numerical analysis and simulation of the systems that will be put into the accelerator. For example learning about and implementing simulations of high-momentum subatomic particles is a sure way to elevate my understanding both of subatomic physics and the nuances of numerical simulation. In a similar vein, doing a statistical analysis of the resulting data is an additional method to improve my understanding. A hypothetical project I might work on in light of these two methods is to 1) build a simulation of some experimental procedure (e.g. the collision of electrons or the tilt of muons in a magnetic field) and 2) analyze and fit data from this experimental procedure to my simulation. I would be glad to implement this general style of project in the context of current research at FermiLab, though I am open to projects of many different forms, if the laboratories has a template in mind.</p> <p>Additionally, I would like to approach the program with more Mathematical rigor in order to elevate my understanding of Mathematics and Physics and to understand the abstract ideas circling around the reality of an Accelerator Laboratory. While I understand the program is not intended to teach, I am approaching it with the hope that I can develop a more cohesive understanding of Accelerator Physics.</p>
Personal Experience:	<p>The experiences that I feel most speak to my potential in the SULI program are my experiences in academics. Ever since High-school, I have always been interested in taking my knowledge to the next level. Whether that be talking to my counselor freshman year of high-school about doubling up on Algebra 2 and Geometry, or this past year pursuing two graduate level courses as a sophomore in college, I can confidently say I always try to reach forward and keep an eye on what is ahead of me in academia. In sum, this has granted me the ability to graduate with my Bachelors degree in 2 years. However with my Bachelors program being so short and with COVID 19 occupying my freshman year, it was difficult for me to incorporate research into my undergraduate experience - an almost ironic 'punishment' for being ahead.</p> <p>Outside of pure academia, I try to engage with physics as a hobby as well. Very frequently I find myself theorizing, studying, and exploring ideas simply for enjoyment. Whether this takes the form of coding projects, watching lectures online, or writing up drafts about conceptual physics, I try to engage with my long term goals in physics as much as I can. I feel like I can confidently attribute my capability to take more advanced courses to this. The exposure to ideas and concepts outside the standard track of academia has been essential to my identity and success as a physics student. To this extent, I would love to share these projects and all the bits of knowledge I've gained, but as they are not formal or developed enough to elaborate on individually, I am left referencing them mostly in general. If anything take this as a promise to their existence and a testament to their importance.</p>
Professional Goals:	<p>To be forward, my goals as a physicist are ambitious. After a Masters program and likely a PhD program, I intend to pursue a career with an Accelerator Laboratory, in light of my interest in the Standard Model and hands on</p>

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exposure to research. More generally, I want to pursue research in the Standard Model at any number of institutions and universities throughout my career. To some extent, I want this research to be rooted in reality - following and predicting data from all types of laboratories. On the other hand, I am appreciative of Mathematical Physics. To that extent, I want to approach my career with the perspective that both theory and hard data can be integrated into more cohesive theoretical models. And as an ambitious Physics student I have large dreams for a cohesive theoretical model... but I at least know from Physics news that Accelerator and Standard Model Physics are at the forefront of discovery.

All of that being said, the SULI program is a first exposure. It is a means to engage with my interests and to practice utilizing my knowledge in a formal research setting. With a SULI program, I can learn about the things that aren't in textbooks, but are essential to the Physics community. Phrased differently, the SULI program and the Laboratories I selected *are* what I want to do with my career. From the angle of simulation and data analysis that I mentioned in my other prompts, I hope to elevate both my hands on experience with research and my understanding of theory. Doing so requires me to integrate theory and practice into a cohesive whole.

The SULI program is both the quintessential and perfect way for me to develop skills, pursue my interests, build a resume, and engage with Physics research.

RECOMMENDATIONS

Recommendation 1: **First Name:** George
Last Name: Gibson
Email: george.gibson@uconn.edu
Status: Received 1/4/2022

Recommendation 2: **First Name:** Matthew
Last Name: Badger
Email: matthew.badger@uconn.edu
Status: Received 12/28/2021

Unofficial Transcript

Name: Eric Scheuermann
Student ID: 2698049

Print Date: 12/24/2021

Beginning of Undergraduate Record

Fall 2020 (2020-08-31 - 2020-12-20)

Program: Liberal Arts & Sciences
Plan: Physics Major

Transfer Credit from University of Connecticut
Applied Toward Liberal Arts & Sciences Program

Course	Description	Attempted Credits	Earned Credits	Grade	Grade Points
ENGL 1011	Seminar Writing thr Literature	4.00	4.00	A	16.000
ENGL 1010	Seminar in Academic Writing	4.00	4.00	B+	13.200
HIST 1501	United States History to 1877	3.00	3.00	B+	9.900
HIST 1502	U.S. History Since 1877	3.00	3.00	B+	9.900
MATH 2110Q	Multivariable Calculus	4.00	4.00	A	16.000
STAT 1100Q	Elem Concepts of Stats	4.00	4.00	B	12.000

Course Trans GPA: 3.500 Transfer Totals: 22.000 22.000 77.000

Test Credits Applied Toward Liberal Arts & Sciences

Course	Description	Attempted Credits	Earned Credits	Grade	Grade Points
BIOL 1107	Principles of Biology I	4.00	4.00	T	0.000
BIOL 1108	Principles of Biology II	4.00	4.00	T	0.000
CHEM 1127Q	General Chemistry I	4.00	4.00	T	0.000
CHEM 1128Q	General Chemistry II	4.00	4.00	T	0.000
MATH 1131Q	Calculus I	4.00	4.00	T	0.000
MATH 1132Q	Calculus II	4.00	4.00	T	0.000
PHYS 1501Q	Physics for Engineers I	4.00	4.00	T	0.000
PHYS 1502Q	Physics for Engineers II	4.00	4.00	T	0.000
PSYC 91000	PSYC 1000 Level	3.00	3.00	T	0.000
STAT 1100Q	Elem Concepts of Stats	4.00	0.00	T	0.000

Note: Duplicate course

Test Trans GPA: 0.000 Transfer Totals: 35.000 35.000 0.000

Course	Description	Attempted Credits	Earned Credits	Grade	Grade Points
CHIN 1121	Traditional Chinese Culture	3.00	3.00	A-	11.100
ECON 1201	Principles of Microeconomics	3.00	3.00	B	9.000
Note:	Honors Credit				
MATH 2410Q	Elem Differential Equations	3.00	3.00	A	12.000
PHYS 2300	Development of Quantum Physics	3.00	3.00	A	12.000
UNIV 1784	Freshman Honors Seminar	1.00	1.00	A	4.000

Course Topic: Change Your World
Note: Honors Credit

		Attempted	Earned	GPA Units	Points
Semester GPA	3.700	Semester Totals	13.00	13.00	48.100
Cumulative GPA	3.574	Cumulative Totals	70.00	70.00	35.00 125.100

Honors Program

Good Standing

Spring2021 (2021-01-19 - 2021-05-08)

Program: Liberal Arts & Sciences
Plan: Physics Major

Course	Description	Attempted Credits	Earned Credits	Grade	Grade Points
MATH 2710	Transition to Advanced Math	3.00	3.00	A	12.000
NRE 1235E	Environmental Conservation	3.00	3.00	C+	6.900
PHYS 2501W	Advanced Undergraduate Lab	4.00	4.00	A	16.000
PHYS 3101	Mechanics I	3.00	3.00	B+	9.900
WGSS 2217	Women, Gender and Film	3.00	3.00	A	12.000

		Attempted	Earned	GPA Units	Points
Semester GPA	3.550	Semester Totals	16.00	16.00	16.00 56.800
Cumulative GPA	3.567	Cumulative Totals	86.00	86.00	51.00 181.900

Honors Program

Good Standing

Fall 2021 (2021-08-30 - 2021-12-19)

Program: Liberal Arts & Sciences
Plan: Physics Major

Course	Description	Attempted Credits	Earned Credits	Grade	Grade Points
ENGL 2214W	African American Literature	3.00	3.00	A	12.000
MATH 3370	Differential Geometry	3.00	3.00	A	12.000
PHYS 3201	Electricity and Magnetism I	3.00	3.00	C+	6.900
PHYS 3401	Quantum Mechanics I	3.00	3.00	B+	9.900
PHYS 5201	Theoretical Mechanics I	3.00	3.00	A-	11.100

		Attempted	Earned	GPA Units	Points
Semester GPA	3.460	Semester Totals	15.00	15.00	15.00 51.900
Cumulative GPA	3.542	Cumulative Totals	101.00	101.00	66.00 233.800

Winter2022 (2021-12-27 - 2022-01-14)

Program: Liberal Arts & Sciences
Plan: Physics Major

Course	Description	Attempted Credits	Earned Credits	Grade	Grade Points
ENGL 2407	The Short Story	3.00	0.00		0.000

		Attempted	Earned	GPA Units	Points
Semester GPA	0.000	Semester Totals	3.00	0.00	0.00 0.000
Cumulative GPA	3.542	Cumulative Totals	104.00	101.00	66.00 233.800

Spring2022 (2022-01-18 - 2022-05-07)

Program: Liberal Arts & Sciences
Plan: Physics Major

Course	Description	Attempted Credits	Earned Credits	Grade	Grade Points
PHYS 2702	Techniques Modern Astrophysics	3.00	0.00		0.000
PHYS 3150	Electronics	3.00	0.00		0.000
PHYS 3202	Electricity and Magnetism II	3.00	0.00		0.000
PHYS 3300	Statistical & Thermal Physics	3.00	0.00		0.000
PHYS 4096W	Research Thesis in Physics	3.00	0.00		0.000
PHYS 5401	Quantum Mechanics I	3.00	0.00		0.000

Unofficial Transcript

Name: Eric Scheuermann
Student ID: 2698049

			<u>Attempted</u>	<u>Earned</u>	<u>GPA Units</u>	<u>Points</u>
Semester GPA	0.000	Semester Totals	18.00	0.00	0.00	0.000
Cumulative GPA	3.542	Cumulative Totals	122.00	101.00	66.00	233.800
Undergraduate Career Totals						
Cumulative GPA	3.542	Cumulative Totals	122.00	101.00	66.00	233.800

Unofficial Transcript

Name: Eric Scheuermann
Student ID: 2698049

Print Date: 12/24/2021

Beginning of Non Degree Programs Record

Program: Early College Experience
Plan: Early College Experience Specialization

Course	Description	Attempted Credits	Earned Credits	Grade	Grade Points
STAT 1100Q	Elem Concepts of Stats	4.00	4.00	B	12.000
		<u>Attempted</u>	<u>Earned</u>	<u>GPA Units</u>	<u>Points</u>
Semester GPA	3.000 Semester Totals	4.00	4.00	4.00	12.000
Cumulative GPA	3.000 Cumulative Totals	4.00	4.00	4.00	12.000

Program: Early College Experience
Plan: Early College Experience Specialization

Course	Description	Attempted Credits	Earned Credits	Grade	Grade Points
HIST 1501	United States History to 1877	3.00	3.00	B+	9.900
		<u>Attempted</u>	<u>Earned</u>	<u>GPA Units</u>	<u>Points</u>
Semester GPA	3.300 Semester Totals	3.00	3.00	3.00	9.900
Cumulative GPA	3.129 Cumulative Totals	7.00	7.00	7.00	21.900

Program: Early College Experience
Plan: Early College Experience Specialization

Course	Description	Attempted Credits	Earned Credits	Grade	Grade Points
HIST 1502	U.S. History Since 1877	3.00	3.00	B+	9.900
		<u>Attempted</u>	<u>Earned</u>	<u>GPA Units</u>	<u>Points</u>
Semester GPA	3.300 Semester Totals	3.00	3.00	3.00	9.900
Cumulative GPA	3.180 Cumulative Totals	10.00	10.00	10.00	31.800

Program: Early College Experience
Plan: Early College Experience Specialization

Course	Description	Attempted Credits	Earned Credits	Grade	Grade Points
ENGL 1010	Seminar in Academic Writing	4.00	4.00	B+	13.200
ENGL 1011	Seminar Writing thr Literature	4.00	4.00	A	16.000
		<u>Attempted</u>	<u>Earned</u>	<u>GPA Units</u>	<u>Points</u>
Semester GPA	3.650 Semester Totals	8.00	8.00	8.00	29.200
Cumulative GPA	3.389 Cumulative Totals	18.00	18.00	18.00	61.000

Program: Early College Experience
Plan: Early College Experience Specialization

Program: CCS Non-Degree
Plan: Early College Program Preparation

Course	Description	Attempted Credits	Earned Credits	Grade	Grade Points
MATH 2110Q	Multivariable Calculus	4.00	4.00	A	16.000
		<u>Attempted</u>	<u>Earned</u>	<u>GPA Units</u>	<u>Points</u>
Semester GPA	4.000 Semester Totals	4.00	4.00	4.00	16.000
Cumulative GPA	3.500 Cumulative Totals	22.00	22.00	22.00	77.000
Non Degree Programs Career Totals					
Cumulative GPA	3.500 Cumulative Totals	22.00	22.00	22.00	77.000

End of Unofficial Transcript

SULI PROGRAM APPLICATION RECOMMENDATION FOR ERIC SCHEUERMANN

Recommender Contact Information

- **First Name:** Matthew
- **Last Name:** Badger
- **Title:** Associate Professor
- **Department:** Mathematics
- **Institution/Organization:** University of Connecticut
- **Telephone:**
- **Email:** matthew.badger@uconn.edu

Applicant Information

Association

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

see below

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.

Dear Admissions Committee,

I am pleased to write this letter of recommendation for Elizabeth Scheuermann, who is applying to your graduate program or summer program in Physics. I have known Liz for one semester. Based on her performance in my course and especially on the extra work she carried out to receive honors credit, I recommend Liz for graduate studies in an excellent program in very strong terms.

In Fall 2021, Elizabeth enrolled in my section of Math 3370 Differential Geometry, which is a traditional course on curves and surfaces. We covered the first four chapters of the English translation of the book by Wolfgang K\"uhnel. On top of the basic course material, Liz asked to do an honors conversion and explored writing an undergraduate honors thesis with me (ultimately it was decided an advisor in physics would be a better choice). To earn the honors credit, I asked Liz to read two research papers in differential geometry and present on each of them for an hour. Often times, in this situation, I find short 5-10 page papers for a student to read from sources such as the American Mathematical Monthly. However, in this situation, Liz took the initiative and self-selected the papers to read based on her interests in mathematical physics. This all turned out very well and Liz received an 'A' in the course.

Liz came to office hours about 8 times throughout the semester to talk about her proposed honors thesis: to find a representation of the path integral formulation of quantum mechanics using the tools of differential geometry. During the meetings, Liz wrote out what she had worked on over the last week at the board. I would ask a few questions or clarifications or have small suggestions on what to try next. Most impressively, Liz almost never consulted the hand written notes that she brought with her. She gave the most confident presentations of any undergraduate student that I have seen in 15 years of teaching. On the technical front, Liz is well-

versed with computations involving differential forms. It was clear from the very first meeting that she has a serious passion for mathematical physics.

I would like to reiterate my very strong recommendation of Elizabeth Scheuermann for a place in your program. Please do not hesitate to contact me if you have any questions.

Sincerely,

Matthew Badger, Ph.D., NSF CAREER Award

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 ERIC SCHEUERMANN

Recommender Contact Information

- **First Name:** George
- **Last Name:** Gibson
- **Title:** Professor
- **Department:** Physics
- **Institution/Organization:** University of Connecticut
- **Telephone:** 860-486-3857
- **Email:** george.gibson@uconn.edu

Applicant Information

Association

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

I had Ms. Scheuermann in one course for upper division physics majors, the Development of Quantum Mechanics. A single course does not generally give a strong indication of a student's potential, but numerous discussions with Ms. Scheuermann convinces me that she is highly motivated to pursue math and physics and that she has the creativity and ability to tackle new and interesting problems. In light of this, I can recommend her, without hesitation, for the Science Undergraduate Laboratory Internships. Just a personal note to avoid any confusion: officially, the applicant is known as Eric Scheuermann. However, she presents herself as Elizabeth Scheuermann and uses she/her pronouns.

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.

Ms. Scheuermann did quite well in the basic coursework for Quantum Mechanics. However, more interestingly, I gave a computational project – essentially using the shooting method to find the stationary states of an arbitrary 1D potential. I provided the students with an Excel spreadsheet that performed the 4th order Runge-Kutta integration and well as a pre-programmed solver to match the boundary conditions. I did this so that the students could focus on the physics without getting bogged down in the computational details. Ms. Scheuermann, however, did not want to simply use my spreadsheet and went ahead and wrote an independent program in Python, totally on her own. This was certainly not required for the course but indicates Ms. Scheuermann's interest in wanting to do everything herself to fully understand the technique. Needless to say, her results were all correct.

I mentioned in class that there are more powerful techniques for solving the time-independent and time-dependent Schrödinger equations which can be extended to multiple dimensions – namely the split operator method. She became so interested in this that we agreed to do an independent study in Spring 2022 on this topic. In particular, I have a specific problem in high-intensity laser physics that I have been looking for a student to work on and I anticipate that we will make significant progress on this.

Besides the work that I specifically know of, during conversations with her, I learned of several other impressive aspects of her academic career, so far. 1) It turns out that she will be finishing her undergraduate degree in a total of two years, due to prior advanced placement credits and a heavy course schedule. 2) During these two years, she has taken several graduate physics courses. 3) She is also very adept at math and had an

honors conversion of her Differential Geometry course. 4) Besides her regular courses, she has tried to develop her own theories. 5) She has signed up to be a tutor for a new program we started for remedial math for physics students. 6) Finally, she is actively pursuing research opportunities outside of the University of Connecticut.

Given Ms. Scheuermann’s natural abilities in math and physics, her motivation, and her interest in going beyond the regular course work of the Physics BS, I think she will succeed in whatever program she chooses at this point. Thus, I would strongly urge you to give her the opportunity demonstrate her abilities and contribute to the SULI program.

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	