

Science Undergraduate Laboratory Internships (SULI)

Summer 2022 - Application for: Reece David Sharp

APPLICANT PROFILE

General Applicant Information

First Name: Reece

Middle Name: David

Last Name: Sharp

Previous Last Name(s):

Primary Email Address: reecesharp@gmail.com

Alternate Email Address 1: rsharp17@vols.utk.edu

Alternate Email Address 2:

ORCID: [0000-0002-0392-4220](https://orcid.org/0000-0002-0392-4220)

Current Address

Primary Phone Number: 865-312-0514

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: Tennessee

College/University Name: University of Tennessee, Knoxville

College/University Address: Knoxville, TN 37996

College/University City: Knoxville

College/University Zip Code: 37996-0001

Expected/Declared Major: Physical Sciences - Physics

Expected Degree From This College/University: Bachelor's

Expected/Completed Graduation Date: May / 2024

Transcript: 1LV7308481.pdf

Does this institution provide grades? Yes

GPA Scale: 4.0

Total Attempted Credits: 31.00

Total Earned Credits: 31.00

Total Quality Points: 121.90

GPA: 3.93

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Science, Technology, Engineering and Mathematics (STEM) Courses

Course Title: Calculus III

Course Number: 241

Enrollment Status: Currently Enrolled

Course Title: Differential Equations I

Course Number: 231

Enrollment Status: Planning to Enroll

Course Title: Fundamentals of Physics: Modern Physics

Course Number: 250

Enrollment Status: Currently Enrolled

Course Title: Honors: Calculus I

Course Number: 147

Enrollment Status: Recently Completed

Course Title: Honors: Calculus II

Course Number: 148

Enrollment Status: Recently Completed

Course Title: Introduction to Physics for Physical Science and Mathematics Majors I

Course Number: 135

Enrollment Status: Recently Completed

Course Title: Introduction to Physics for Physical Science and Mathematics Majors II

Course Number: 136

Enrollment Status: Recently Completed

Course Title: Introduction to Programming

Course Number: 101

Enrollment Status: Planning to Enroll

Course Title: Thermal Physics

Course Number: 321

Enrollment Status: Planning to Enroll

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Awards or Honors

Award Title: Chancellors' Honors Program

Month & Year Received: August / 2020

Awarding Institution: University of Tennessee, Knoxville

Award Title: Physics General Scholarship (Academic)

Month & Year Received: August / 2020

Awarding Institution: Physics Department of UTK

Award Title: UT Volunteer Scholarship (ACT >34))

Month & Year Received: August / 2020

Awarding Institution: University of Tennessee, Knoxville

Award Title: Hope with Merit Supplement

Month & Year Received: August / 2020

Awarding Institution: University of Tennessee, Knoxville

Award Title: Summa Cum Laude (1st Semester)

Month & Year Received: December / 2020

Awarding Institution: University of Tennessee, Knoxville

Award Title: Summa Cum Laude (2nd Semester)

Month & Year Received: May / 2021

Awarding Institution: University of Tennessee, Knoxville

High School Graduation or GED

Date of High School Graduation or GED: May / 2020

Country: United States

City: Knoxville

State/Province/Territory: TN

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WORK EXPERIENCE & SKILLS

Work Experience

Name of Place of Employment or Activity:	American Museum of Science and Energy
Dates of Employment or Activity:	From 7/11/2021 To Present
Hours Per Week:	4.0
Primary Duties:	<p>Work at the power grid.</p> <p>Guiding guests to various exhibits</p> <p>Assist visitors with puzzles</p> <p>Educate guests on exhibits</p>
Tasks Performed:	<p>Provide instruction on how to use the museum's power grid exhibit by demonstrating how pieces interact with the board, and how they may be manipulated to create an effective power grid.</p> <p>Tell visitors the schedule for movies or demonstrations</p> <p>Clean the pieces of the remote handling device, which is an exhibit of a robotic arm, so that all the pieces are accessible.</p> <p>Disassemble the puzzles after use.</p> <p>Assist with demonstrations, such as in demonstrations of the Van de Graaf generator, by providing information about how the machine works.</p>

Professional Associations

Are you a member of any professional organizations?	No
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Computer Skills

Computer related skills:	<p>I have knowledge on how to use Microsoft software such as Excel, Word, and PowerPoint. Particularly with Excel, I know how to do basic data analysis and create charts and trends.</p> <p>Additionally, I took AP Computer science in high school, where we utilized basic Javascript for coding applications. I am also currently enrolled in Computer Science 101 in the Spring, so I will gain some more experience with programming languages prior to the internship.</p>
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Laboratory/Technical Skills

Experience with advanced laboratory techniques or equipment:	<p>From Modern Physics, I have a basic understanding of how to use Geiger counters to detect radiation counts over a period of time.</p> <p>I have also utilized ammeters and voltmeters in the past in a laboratory setting.</p>
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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? 5/19/2022

When do you need to complete your
internship? 8/17/2022

First Choice Host DOE Laboratory

DOE Laboratory: Oak Ridge National Laboratory (ORNL)

First Choice Research Area: Plasma and Fusion Sciences

Second Choice Research Area: Nuclear Physics

Third Choice Research Area: Condensed Matter Physics

Second Choice Host DOE Laboratory

DOE Laboratory: Thomas Jefferson National Accelerator Facility (TJNAF)

First Choice Research Area: Nuclear Physics

Second Choice Research Area: Accelerator Physics/Science

Third Choice Research Area: Materials Sciences

Relatives Employed at DOE Laboratories

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

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ESSAYS

Research Experience:	I do not have previous experience working on research; however, I hope to gain valuable research experience during the opportunities offered by this program.
Research Interests:	<p>I am primarily interested in commercial uses for nuclear research, particularly in the development of fusion technologies such as in ITER. This is why I chose nuclear fusion and nuclear physics as my first and second choice at ORNL. I personally believe that the development of additional ways to generate electricity is necessary, and that research in fusion and fission sources of power are a valuable tool to that end.</p> <p>Additionally, uses for fission research in scanning technologies such as the Spallation Neutron Source at ORNL and the CEBAF at Jefferson are interesting, particularly given the widespread applications of scanning technologies in furthering scientific understanding and engineering development.</p> <p>I also chose materials sciences as my third choice at Jefferson, as materials sciences, particularly superconductors, are necessary for fusion development. This is most noticeable in magnetic confinement, as is used in the ITER project.</p> <p>Location is one important factor determining my choice of host laboratory, as I am within driving distance to ORNL. This would mean that I would have to look for new accommodations if I were to intern at Jefferson.</p>
Personal Experience:	<p>One of the skills I have learned through my schooling is inquisitiveness. I specifically go out of my way to investigate things on my own that pertain to my education, such as in physics or mathematics, to gain a deeper understanding. One way in which this may be valuable is that I will attempt to understand what is going on around me both by asking questions, as well as by doing my own outside research. I believe this provides a more complete understanding of scientific processes that I may be permitted to see or participate in. This is also valuable, as prior research allows me to have a foundation of knowledge to build upon in order that I may make more insightful observations, rather than just learn on the fly.</p> <p>Another aspect of my academic experience that may be valuable in my ability to contribute to the program is my love of and dedication to science. This is advantageous, as I focus heavily on expanding my understanding, and do not just sit passively to be taught. I alluded to this earlier when I mentioned inquisitiveness, but I ask questions and work to further my understanding of science as much as possible. I believe this focus on science and learning will make me a valuable member of the program.</p>
Professional Goals:	<p>I wish to continue my education past the graduate level and pursue an education in nuclear engineering post-graduation. Beyond that, I wish to contribute to solving the energy crisis, by assisting in the development of nuclear technologies in power generation, particularly in fusion development.</p> <p>The SULI program will be invaluable to the development of my skillset, as it would allow me to work in a professional research environment with scientists working directly in the field that I wish to pursue. Additionally, seeing the practical research done by professionals working in this field will allow me to analyze what skills I will need, and inform what advanced classes I will need to take in the future and what to prioritize. For example, how much emphasis I place on computer science, engineering, different branches of</p>

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mathematics, etc. may be informed by my experience during the internship.

RECOMMENDATIONS

Recommendation 1: **First Name:** Glenda
Last Name: Bingham
Email: gbingham@amse.org
Status: Received 12/6/2021

Recommendation 2: **First Name:** Katherine
Last Name: Grzywacz-Jones
Email: kgrzywac@utk.edu
Status: Received 12/16/2021

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REECE DAVID SHARP
Transcript Created: 21-Nov-2021

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THE UNIVERSITY OF TENNESSEE KNOXVILLE
ACADEMIC TRANSCRIPT

Sharp, Reece David

000-54-9495

11/22/2021

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FALL SEMESTER 2020		Arts and Sciences	
ENGL	198	Chancellor's Honors Writing I	3.00 U A
FYS	101	General - Arts & Science	1.00 U A
MATH	147	Honors: Calculus I	4.00 U A
PHYS	135	Intro Phys/Sci Math Majors I	4.00 U A
RUSS	101	Elementary Russian	4.00 U A-

SPRING SEMESTER 2021		Arts and Sciences	
ENGL	298	Chancellor's Honors Writing II	3.00 U A-
MATH	148	Honors: Calculus II	4.00 U A
PHYS	136	Intro Phys/Sci Math Majors II	4.00 U A
RUSS	102	Elementary Russian	4.00 U A

Cumulative:

U Att: 31.00 Earned: 31.00 Qpts: 121.90 GPA: 3.93

MEMORANDA

High School: Grace Christian Acad
HS Address: Knoxville TN 37931
HS Date Grad: 05/2020

END OF TRANSCRIPT




Jeff Gerkin
Interim University Registrar

THE UNIVERSITY OF TENNESSEE, KNOXVILLE, OFFICE OF THE UNIVERSITY REGISTRAR
209 STUDENT SERVICES BLDG, KNOXVILLE, TN 37996

ACCREDITATION - Since 1897, UT has been continuously accredited by the Southern Association of Colleges and Schools.

CALENDAR SYSTEMS – All course work completed prior to Fall Semester 1988 is under the quarter system. College of Law course work completed after Spring Quarter 1981 is under the semester system.

GRADING SYSTEM

GRADE	INTERPRETATION	UG PRIOR TO FALL 2008	UG FALL 2008	GR PRIOR TO FALL 2016	GR FALL 2016
A	Superior	4.0	4.0	4.0	4.0
A-	Intermediate Grade	N/A	3.7	N/A	3.7
B+	Very Good	3.5	3.3	3.5	3.3
B	Good	3.0	3.0	3.0	3.0
B-	Intermediate	N/A	2.7	N/A	2.7
C+	Fair	2.5	2.3	2.5	2.3
C	Satisfactory	2.0	2.0	2.0	2.0
C-	Unsatisfactory	N/A	1.7	N/A	N/A
D+	Unsatisfactory	N/A	1.3	N/A	N/A
D	Unsatisfactory	1.0	1.0	1.0	1.0
D-	Unsatisfactory	N/A	0.7	N/A	N/A
F	Failure	0.0	0.0	0.0	0.0
I	Incomplete	0.0	0.0	0.0	0.0
	Incomplete grade computed as failure for undergraduates prior to fall semester 1988				
	Incomplete grade computed as failure for graduate students prior to fall quarter 1976.				
WF	Withdrew failing	0.0 (discontinued as failing grade fall 2008)			
X	Exam missed	0.0 (discontinued fall 1975)			

The following grades or notations are used by the university, however, these do not earn quality points and are not used in GPA calculations.

GRADE	EXPLANATION
Aud	Audit (courses not recorded on academic record effective fall 1982.)
Blank	No report
CR	Credit earned grade-represents a grade of C-, D+, D, or D-. Spring 2020 only.
H	Satisfactory honors grade-satisfactory grade that equates to A or B for law and vet med students.
IW	Incomplete due to writing deficiency
N	No progress
NC	No credit-represents a standard of C-, D+, D, D-, F; spring 2020 only represents standard grade of F for undergraduates.
NC Grade	NC-,ND+, ND, ND-, NF, no credit grades-represents a standard of C-, D+, D, D-, F
NG	No grade
NP	No progress or inadequate progress
NR	Non-reported grade
P	Progress (progress toward completion of a thesis or dissertation)
S	Satisfactory (equates to A, B, or C for undergraduates; equates to A or B for graduate students)
SI	Incomplete grade for a course graded satisfactory/no credit
W	Withdrawn
WP	Withdrew passing
WF	Withdrew failing (effective fall 2008)
(*)	Repeated course-All attempted and earned hours and quality points for the course are excluded from the cumulative totals.
(#)	Repeated course-All earned hours for the course are subtracted from the cumulative totals.
IC	Incomplete grade for courses graded A, B, C, no credit grade
CI	Incomplete grade for courses graded S/CR/NC

GRADES FOR COLLEGE OF LAW-Effective fall semester 2006, the College of Law awards numerical grades and grades of satisfactory/no credit. Numerical grades are reported in 0.1 increments with 0.0 being the lowest possible grade, 0.8 the lowest passing grade and 4.3 the highest grade possible. Grades of 4.1-4.3 are considered to reflect extraordinary performance. Grade point averages will be rounded to the nearest tenth point by the college when determining class rank and honors distinctions although the official university transcript reflects averages rounded to the hundredth decimal place.

CREDIT LEVEL AND NUMBERING SYSTEM

U-Undergraduate level courses numbered 100(0) – 400(0)
G-Graduate level courses numbered 500(0) and 600(0)
L-Law level courses
V-Veterinary Medicine level courses
S or R in the course number signifies a service or research course
N in the course number signifies an internship course

TRANSFER POLICY-(Effective fall quarter 1985)-Transfer hours are counted for degree programs but are not computed in the UT grade point average for courses transferred after summer quarter 1985.

GOOD STANDING-Unless otherwise noted by 'ACADEMIC DISMISSAL' student is in good standing and eligible to enroll.

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SULI PROGRAM APPLICATION RECOMMENDATION FOR REECE DAVID SHARP

Recommender Contact Information

- **First Name:** Glenda
- **Last Name:** Bingham
- **Title:** Volunteer Coordinator
- **Department:** Public Programs
- **Institution/Organization:** America Museum of Science & Energy
- **Telephone:** 865-603-7438
- **Email:** gbingham@amse.org

Applicant Information

Association

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

Reece Sharp is currently a Volunteer at the American Museum of Science & Energy (AMSE). He began volunteering with the museum on July 21, 2021 at AMSE as a floor docent for the Sunday afternoon shift. His duties include, greeting, orienting and interacting with visiting guests. Reece has also taken on the responsibility of learning educational programs such as the Power Grid; which is an interactive exhibit for educators to talk about energy resources, and assist visitors in creating a model grid for their communities. Reece's knowledge of energy production methods have been a great asset for working with visitors on this particular program. He also has shown initiative in learning other programs on the museum floor (i.e, Virtual Reality , 3 D Printing, along with research facilities like High Flux Isotope Reactor and the Spallation Neutron Source). He always goes above and beyond in ensuring our visitors have a great experience while they are here. He is a professional and punctual and truly a great asset to our museum. If you have any question, please do not hesitate to contact me at (865) 294-4517.

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.

Reece has displayed the capability of disseminating very technical energy content and making it more relatable to the average person. He is not afraid to approach and learn new topics and in doing so creates fun, and entertaining ways to excite students and adults about learning.

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 REECE DAVID SHARP

Recommender Contact Information

- **First Name:** Kate
- **Last Name:** Jones
- **Title:** Professor and Associate Head
- **Department:** Physics and Astronomy
- **Institution/Organization:** University of Tennessee - Knoxville
- **Telephone:** 865-974-4022
- **Email:** kgrzywac@utk.edu

Applicant Information

Association

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

Reece was a student in my PHYS 250 Modern Physics during the Fall of 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.

Reece worked very consistently through the semester across these different elements, obtaining the joint highest grade in the class of 24 students. He performed well in all aspects of the course, scoring 90% or above in each over the course of the semester.

To summarize, Reece Sharp is emerging as a talented physicist, who works consistently and performs exceptionally well in classwork, homework and exams. I would rank him in the top 15% of undergraduate students that I have encountered. Reece aspires to apply to graduate school to work toward a PhD in physics. His current interests include Fusion and plasma science and well as nuclear and condensed matter physics. I strongly recommend him for a position in your 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	