

Science Undergraduate Laboratory Internships (SULI)

Summer 2022 - Application for: Isaac Smythe

APPLICANT PROFILE

General Applicant Information

First Name: Isaac

Middle Name:

Last Name: Smythe

Previous Last Name(s):

Primary Email Address: smythei@etsu.edu

Alternate Email Address 1: isaacismythe@gmail.com

Alternate Email Address 2:

ORCID: [0000-0001-6618-6141](https://orcid.org/0000-0001-6618-6141)

Current Address

Primary Phone Number: 904-468-2008

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: Senior

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: East Tennessee State University

College/University Address: 1276 Gilbreath Drive

College/University City: Johnson City

College/University Zip Code: 37614

Expected/Declared Major: Physical Sciences - Physics

Minor and/or Concentration Expected/Declared: Physical Sciences - Astronomy

Expected Degree From This College/University: Bachelor's

Expected/Completed Graduation Date: December / 2022

Transcript: 21transriptSULI.pdf

Does this institution provide grades? Yes

GPA Scale: 4.0

Total Attempted Credits: 78.00

Total Earned Credits: 78.00

Total Quality Points: 274.00

GPA: 3.51

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Science, Technology, Engineering and Mathematics (STEM) Courses

Course Title: Astrophysics

Course Number: 4315

Enrollment Status: Planning to Enroll

Course Title: Condensed Matter Physics

Course Number: 4187

Enrollment Status: Currently Enrolled

Course Title: Electronics & Magnetism

Course Number: 3710

Enrollment Status: Currently Enrolled

Course Title: Modern Physics Lab

Course Number: 3410

Enrollment Status: Planning to Enroll

Course Title: Optics

Course Number: 3210

Enrollment Status: Currently Enrolled

Course Title: Quantum Physics

Course Number: 4617

Enrollment Status: Currently Enrolled

Course Title: Thermal and Statistical Physics

Course Number: 4117

Enrollment Status: Planning to Enroll

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Awards or Honors

Award Title: Placed on the Deans list

Month & Year Received: December / 2021

Awarding Institution: East Tennessee State University

Award Title: Placed on the Dean's list

Month & Year Received: May / 2021

Awarding Institution: East Tennessee State University

Award Title: Placed on the Dean's list

Month & Year Received: December / 2020

Awarding Institution: East Tennessee State University

Award Title: Placed on the Dean's list

Month & Year Received: May / 2020

Awarding Institution: East Tennessee State University

Award Title: Academic Performance Scholarship

Month & Year Received: April / 2019

Awarding Institution: East Tennessee State University

High School Graduation or GED

Date of High School Graduation or GED: May / 2019

Country: United States

City: Bristol

State/Province/Territory: VA

Science Undergraduate Laboratory Internships (SULI)

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WORK EXPERIENCE & SKILLS

Professional Associations

Are you a member of any professional organizations? No

Computer Skills

Computer related skills: Fluent in the use of Microsoft Office applications such as Word, Excel, and Outlook.
Limited coding experience in Fortran, Python, Supermongo, and ds9, along with running commands in Windows, Macintosh, and Ubuntu operating systems.
Limited experience using minitap statistical software and Maxim DL 6.

Laboratory/Technical Skills

Experience with advanced laboratory techniques or equipment: Learned how to operate and maintain the 14 inch telescope at the East Tennessee State University observatory. I used this telescope to take pictures of variable stars using the attached CCD camera.

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PROGRAM INFORMATION

Eligibility

Have you previously participated in 2
SULI appointments? No

Previous DOE Internship/Fellowship or Lab Activity Experience

Have you ever had an
internship/fellowship with the
Department of Energy or any of its
National Laboratories (such as SULI,
CCI, VFP) or attended an activity at
one of the National Laboratories
(such as a Mini-Semester or
Sustainable Research Pathways)? No

Availability

What is the earliest date you can
begin your internship? 5/8/2022

When do you need to complete your
internship? 8/19/2022

First 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: High Energy Physics

Second Choice Host DOE Laboratory

DOE Laboratory: Oak Ridge National Laboratory (ORNL)

First Choice Research Area: Nuclear Physics

Second Choice Research Area: Astronomy/Astrophysics

Third Choice Research Area: Accelerator Physics/Science

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: Isaac Smythe

ESSAYS

Research Experience:	<p>During the fall semester of 2021, I completed a research class in which I observed and photographed several variable stars throughout the duration of the semester using the CCD camera on the East Tennessee State University telescope. Taking these photometric pictures, I used Maxim DL 6 to reduce them into usable statistics. The final part of the course was a Lab report of the semester in which I compared the values I observed with the observations on the American Association of Variable Star Observations (AAVSO) website. After my initial training with the telescope, doing the observations was entirely my responsibility, which included watching the weather for clear nights and recalibrating the telescope when necessary.</p> <p>During the spring semester of 2019, I completed the class "Research Methods", in which I worked through excursions of increasing complexity in which I explored some of the methods of astronomical research using commands and coding in Supermongo and ds9. During the latter part of the semester, as the COVID-19 pandemic advanced, all courses were changed to online classes and I was allowed more independence in when I finished the assignments.</p>
Research Interests:	<p>All of the areas of interest that I put down were because they are advancing fields in physics and this would lead to a very interesting and engaging career field. Particularly, nuclear physics is one area of physics that I think I would immensely enjoy, due in part to the complexity and also to the versatility. Nuclear physics then leads into my next preferred field, which is astrophysics. I think this field of physics is also rapidly advancing and has a lot of potential for the future.</p> <p>My reasoning for picking these two laboratories is that they are relatively close to where some of my family lives. It would be nice to live near my family, but I am very willing to go wherever, should the opportunity arise.</p>
Personal Experience:	<p>I think that one of the most important professional experiences that I have had was when I was working on installation of signage at Lowe's and Food Lion stores along the east coast. Just about every week, the crew and I would remove and replace all of the signage in the store in one week. The experience that this work gave me was how to work on a team and also how to deal with and work alongside people who are difficult to work with. This became even more prevalent as I was able to move up from crew member to co-lead, where I was able to help my team lead with decision making, coordination of tasks, and monitoring that these tasks were accomplished well and in a timely manner.</p> <p>Moving to personal experience, I think that my biggest contribution would be through the work ethic and integrity of work that was ingrained into me as I grew up. This I credit mostly to my father being a West Point Army academy graduate and retiring from the U.S. Army after 20 years of service. The work ethic and integrity that he received from the Army was passed along to me and my siblings as we grew up and learned to do everything to the best of our abilities, even if it meant learning a new way to do it. This work ethic I have been able to use as I moved forward in pursuing a degree in physics from East Tennessee State University, which has allowed me to learn and excel in areas that I knew almost nothing about.</p>
Professional Goals:	<p>By participation in the SULI program I am hoping to receive experience that will advance my knowledge of modern physics and help define the specific field of physics I want to pursue further. My reason for this is that one of my goals for the next 5 to 10 years is to go back to college for my masters and possibly a doctorate degree, because I feel that learning something of what fields there are out there is an integral part to moving forward with purpose. This program would allow me to gain experiences and skills that would increase my understanding of the world and allow me to successfully start a career in physics.</p>

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RECOMMENDATIONS

Recommendation 1: **First Name:** Mark
Last Name: Giroux
Email: girouxm@etsu.edu
Status: Received 12/29/2021

Recommendation 2: **First Name:** Gary
Last Name: Henson
Email: hensong@etsu.edu
Status: Received 1/12/2022

Recommendation 3: **First Name:** Beverly
Last Name: Smith
Email: smithbj@etsu.edu
Status: Received 12/29/2021

EAST TENNESSEE STATE UNIVERSITY
OFFICE OF THE REGISTRAR
Box 70561
JOHNSON CITY, TENNESSEE 37614-1707
(423) 439-4230

ISSUED TO STUDENT

SSN: [REDACTED]

Date of Birth: [REDACTED]

Date Issued: 27-DEC-2021
 OFIC Official

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Record of: Isaac Levi Smythe
 Current Name: Isaac L. Smythe

Issued To: ISAAC SMYTHE
 849A ENGLAND ST
 JACKSONVILLE, FL 32227-1601

Course Level: Undergraduate
 Student Type: Continuing
 Only Admit: Fall 2019

Current Program
 Bachelor of Science
 Program : Physics-BS
 College : Arts & Sciences
 Major : Physics
 Minor : Astronomy

SUBJ NO.	COURSE TITLE	CRED GRD	PTS R
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TRANSFER CREDIT ACCEPTED BY THE INSTITUTION:

201680	Bluefield College		
FNCE 2002	So Finance Elective	3.00 TB	
	Total Earned Credits	0.00	
201710	Bluefield College		
ALHE 2002	So Allied Health Elect	1.00 TB	
MATH 1710	Precalculus I (Algebra)	3.00 TA	
	Total Earned Credits	3.00	
201780	Bluefield College		
CSCI 2002	So Compu & Info Sci Elec	3.00 TC	
ENGL 1010	Crit Read/Expos Writing	3.00 TB+	
MUSC 1030	Introduction To Music	3.00 TB+	
	Total Earned Credits	6.00	
201810	Bluefield College		
ECON 2210	Principles of Macroeconomics	3.00 TA	
HIST 2020	U.S. Since 1877	3.00 TA-	
PSYC 1310	Intro To Psych	3.00 TB	
SOCI 1020	Intro to Sociology	3.00 TB	
	Total Earned Credits	9.00	
201880	Bluefield College		
ENGL 1010	Crit Read/Expos Writing	3.00 TB-	
GEEL 1001	General Elective	3.00 TA-	
HIST 1110	World History To 1500	3.00 TA	
HIST 2020	U.S. Since 1877	3.00 TB	
	Total Earned Credits	12.00	
201910	Bluefield College		
ALHE 2002	So Allied Health Elect	1.00 TA	
ALHE 2002	So Allied Health Elect	2.00 TB-	
COMM 2025	Fundamentals of Communication	3.00 TA	
ENGL 1020	Crit Thinking/Argumen	3.00 TB	
	Total Earned Credits	9.00	
201980	Bluefield College		

***** CONTINUED ON NEXT COLUMN *****

SUBJ NO.	COURSE TITLE	CRED GRD	PTS R
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Transfer Information continued

FNCE 2002	So Finance Elective	3.00 TB	I
GEEL 1001	Fr General Elective	1.00 TB+	
	Total Earned Credits	4.00	

PRE-SYSTEM INSTITUTION SUMMARY HOURS:

Total Earned Credits	0.00
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PRE-SYSTEM TRANSFER SUMMARY HOURS:

Total Earned Credits	0.00
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INSTITUTION CREDIT:

E Fall 2019			
COMM 2055	Argumentation and Debate	3.00 A	12.00
HIST 2010	U.S. To 1877	3.00 B-	8.10
MATH 1530	Prob/Stats-Noncalculus	3.00 A-	11.10
MATH 1910	Calculus I	4.00 C	8.00
E PHIL 2640	Science & Modern World	3.00 A-	11.10
	Total Earned Credits	16.00	
TERM COMBINED			
Ehrs: 16.00	GPA-Hrs: 16.00	Qpts: 50.30	GPA: 3.14

E Spring 2020			
A global pandemic occurred during Spring 2020.			
ASTR 1010	Astronomy I	4.00 A	16.00
ENGL 2120	American Literature since 1865	3.00 B	9.00
MATH 1920	Calculus II	4.00 A	16.00
MATH 2010	Linear Algebra	3.00 B	9.00
PHYS 1500	Research Methods	1.00 A	4.00
	Total Earned Credits	15.00	
E Dean's List			
TERM COMBINED			
Ehrs: 15.00	GPA-Hrs: 15.00	Qpts: 54.00	GPA: 3.60

Fall 2020			
I ASTR 1020	Astronomy II	4.00 A	16.00
CSCI 1100	Using Information Tech	3.00 A	12.00
MATH 2110	Calculus III	4.00 B+	13.20
I PHYS 2110	Tech Phys I-Calc Based	5.00 B	15.00
	Total Earned Credits	16.00	

Dean's List			
TERM COMBINED			
Ehrs: 16.00	GPA-Hrs: 16.00	Qpts: 56.20	GPA: 3.51

I *****			
Spring 2021			
ASTR 3215	Women in Astronomy	1.00 A	4.00
MATH 2120	Diff Equations	3.00 A	12.00
MATH 3000	Math Reasoning	3.00 A	12.00
PHYS 2120	Tech Phys II-Calc Based	5.00 B	15.00

***** CONTINUED ON PAGE 2 *****



Thomas N. Donohoe
 Thomas N. Donohoe, Ph. D.
 University Registrar

EAST TENNESSEE STATE UNIVERSITY
OFFICE OF THE REGISTRAR
Box 70561
JOHNSON CITY, TENNESSEE 37614-1707
(423) 439-4230

SSN: [REDACTED]

Date of Birth: [REDACTED]

Date Issued: 27-DEC-2021
OFIC Official

Record of: Isaac Levi Smythe
Level: Undergraduate

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SUBJ NO.	COURSE TITLE	CRED GRD	PTS R
Institution Information continued:			
SPAN 1010	Beginning Spanish I	3.00 A-	11.10
Total Earned Credits 15.00			
Dean's List			
TERM COMBINED			
Ehrs: 15.00 GPA-Hrs: 15.00 QPts: 54.10 GPA: 3.60			

Fall 2021			
ASTR 3970	Variable Stars	2.00 A	8.00
ASTR 4110	Extragalactic Astronomy	4.00 A	16.00
PHYS 3010	Mechanics	4.00 B+	13.20
PHYS 3610	Atomic & Nuclear	3.00 A-	11.10
SPAN 1020	Begin Spanish II	3.00 A-	11.10
Total Earned Credits 16.00			
Dean's List			
Last Standing: Good Standing			
TERM COMBINED			
Ehrs: 16.00 GPA-Hrs: 16.00 QPts: 59.40 GPA: 3.71			

Spring 2022			
IN PROGRESS WORK			
PHYS 3210	Optics	4.00 IN PROGRESS	
PHYS 3710	Elec & Magnetism	4.00 IN PROGRESS	
PHYS 4187	Condensed Matter Physics	4.00 IN PROGRESS	
PHYS 4617	Quantum Physics	4.00 IN PROGRESS	
In Progress Credits 16.00			
***** TRANSCRIPT TOTALS *****			
	Earned Hrs	GPA Hrs	Points GPA
TOTAL INSTITUTION	78.00	78.00	274.00 3.51
TOTAL TRANSFER	43.00	0.00	0.00 0.00
OVERALL	121.00	78.00	274.00 3.51

	Earned Hrs	GPA Hrs	Points GPA
INSTITUTION	78.00	78.00	274.00 3.51
COMBINED			
TRANSFER	43.00	0.00	0.00 0.00
COMBINED			
OVERALL	121.00	78.00	274.00 3.51
COMBINED			
***** END OF TRANSCRIPT *****			



Thomas N. Donohoe
Thomas N. Donohoe, Ph. D.
University Registrar

Official Name of the University

1911-1924 East Tennessee State Normal School
 1924-1930 East Tennessee State Teachers College
 1930-1943 Tennessee State Teachers College
 1943-1963 East Tennessee State College
 1963-Present East Tennessee State University

Accreditation

East Tennessee State University is accredited by the Southern Association of Colleges and Schools. Individual academic units of the University are recognized by various professional accrediting agencies in their respective fields.

Release of Student Information

The transcript accompanying this key has been transmitted at the request of the named student or otherwise in accordance with public law 93-380 (Family Educational Rights and Privacy Act of 1974). Further transmittal of this academic record is not authorized except in accordance with PL 93-380.

Authentication of the Academic Record

With the exception of the ETSU College of Medicine, official ETSU transcripts are printed on blue security paper with the facsimile signature of the University Registrar. A raised seal is not required. Transcripts of the College of Medicine are issued and authenticated by their own officials.

Academic Calendar

1911-1980 Ten-week quarters
 1980-Present Fifteen-week semesters

Transfer Credit

Only courses and credits accepted by the University are indicated on the transcripts of undergraduate students and only credits accepted are indicated on the transcripts of graduate students.

Advanced Standing

Advanced standing can be established through approved examination programs and educational experiences in the armed services. Generally, the grade of "CR" is recorded for credit established in this manner. Approved programs include the following:

- (1) Educational programs and experience in the Armed Services of the United States as recommended by the *Guide to the Evaluation of Educational Experiences in the Armed Services* published by the Commission on Educational Credit of the American Council on Education.
- (2) Advanced Placement program of the College Entrance Examination Board.
- (3) Subject and General Examination programs of the College Entrance Examination Board.
- (4) Proficiency Examination program (PEP) of the American College Testing Program.
- (5) International Baccalaureate program.
- (6) Validation of selected transfer credit from schools or colleges not accredited by the Commission on Colleges of the Southern Association of Colleges and Schools or other regional accrediting associations.
- (7) Challenge examination. Comprehensive departmental examination over subject matter of courses taught at this University, as approved by the ETSU department offering the courses.

Course Numbering System

(Four-digit system adopted 1967)

0XXX- Developmental Studies Level
 1XXX- Freshman Level
 2XXX- Sophomore Level
 3XXX- Junior Level
 4XXX- Senior Level
 5XXX- Masters Level
 6XXX- Educational Specialists Level
 7XXX- Doctoral Level

Grading Systems

The credit hour - The semester hour is the unit of credit (effective Fall, 1980). One semester hour credit represents completion of 750 minutes of recitation or lecture per semester, or a minimum of 1500 minutes of laboratory work per semester.

Grade Points

Grade points are numerical values assigned to letter grades in order to provide a basis for quantitative determination of grade (quality) point averages. The four-point system is used.

Grade	Grade Points
A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0
C-	1.7*
D+	1.3*
D	1.0*
F	0.0
FN-Failure for Non-Attendance	0.0
U	0.0**

*Developmental Studies and Graduate Studies do not assign these grades.

**Counts in GPA only when assigned for second time.

Grades That Do Not Influence Grade Point Average

- P - Pass. No grade points; degree credit hours.
 Cr - Credit. No grade points; degree credit hours. Used to record credit established by nontraditional means. (See Advanced Standing.)
 I - Indicates a passing grade at the end of a semester, but an important part of the course was not completed, e.g., term paper, outside reading, etc.
 Au - Audit.
 W - Withdrawal.
 WF - Withdrawal Failing.
 S - Satisfactory Completion.
 SP - Satisfactory Progress.
 NR - Not Reported.
 T - Grades preceded with a T denote transfer work not included in the GPA.

Annotations Appearing on the Academic Record

Course used to satisfy a Tennessee High School Unit Deficiency.

This Academic Transcript from East Tennessee State University located in Johnson City, TN is being provided to you by Parchment, Inc. Under provisions of, and subject to, the Family Educational Rights and Privacy Act of 1974, Parchment, Inc. is acting on behalf of East Tennessee State University in facilitating the delivery of academic transcripts from East Tennessee State University to other colleges, universities and third parties.

This secure transcript has been delivered electronically by Parchment, Inc. in a Portable Document Format (PDF) file. Please be aware that this layout may be slightly different in look than East Tennessee State University's printed/mailed copy, however it will contain the identical academic information. Depending on the school and your capabilities, we also can deliver this file as an XML document or an EDI document. Any questions regarding the validity of the information you are receiving should be directed to: Office of the Registrar, East Tennessee State University, Box 70561, Johnson City, TN 37614-1707, Tel: (423) 439-4230.

SULI PROGRAM APPLICATION RECOMMENDATION FOR ISAAC SMYTHE

Recommender Contact Information

- **First Name:** Mark
- **Last Name:** Giroux
- **Title:** Professor
- **Department:** Physics and Astronomy
- **Institution/Organization:** Dept. of Physics and Astronomy, East Tennessee State University
- **Telephone:** 423-439-8684
- **Email:** girouxm@etsu.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 Isaac for more than two years as a Physics major advisor. Also, Isaac was a student in my Atomic and Nuclear Physics course.

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.

Isaac entered ETSU as a solid student, and his academic work has been on a steady upward trajectory each semester he has been at ETSU.

In my Atomic and Nuclear Physics, Isaac showed a good grasp of the material, shown in both his homework assignments and his exams.

While he may seem quiet, he is quite articulate when he does speak. His written work is clear and concise.

Isaac was taking our course in Research Methods during the semester when the Pandemic sent students home.

This is a lab based course which depends heavily on software in the lab to reduce and analyze data, as well as hands on

interaction with the instructor as the students work their way through their assignments. When students were sent home

during the semester, Isaac was able to install any needed software on his own computer, and finish all of his research modules

on his own. This is a tribute to his independence and resourcefulness, qualities which will serve him well in his internship.

Isaac is a bright, motivated student who has ably navigated the challenges that the pandemic has provided.

Your internship program presents a wonderful opportunity for him, and one in which I think will do well.

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 ISAAC SMYTHE

Recommender Contact Information

- **First Name:** Beverly
- **Last Name:** Smith
- **Title:** Professor
- **Department:** Physics and Astronomy
- **Institution/Organization:** East Tennessee State University
- **Telephone:** 423-439-8418
- **Email:** smithbj@etsu.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 him for 2 years as a student in three classes and as a Faculty Advisor for Physics majors.

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.

Isaac is an undergraduate here at East Tennessee State University majoring in Physics with a minor in Astronomy. He will graduate in December 2022. He transferred to ETSU from Bluefield College in Fall 2019, and then switched to a Physics major. Impressively, he will complete the entire Physics major, from beginning to end, in 2 1/2 years. This is quite unusual among our Physics majors, and shows his dedication and work ethic.

While at ETSU, Isaac has been a student in three of my classes, an upper level course in Extragalactic Astronomy, a computer-based lab course for beginning Physics majors titled Research Methods, and a special course called 'Women in Astronomy'. He was a strong student in all of these classes, receiving A's in all three courses.

The Research Methods course introduces students to the unix (ubuntu) operating system, computer programming, and data analysis. Isaac did an excellent job in this course. He took the course during Spring 2019, the semester in which Covid-19 arrived at our campus. Halfway through the semester, all ETSU courses were moved on-line. At that point, I asked the Research Methods students to install ubuntu on their home computers and do the rest of the semester's exercises at home. Unlike several other students in the course, Isaac came through like a champ, getting ubuntu installed without any problems and doing the exercises at home with little trouble. Many of the other students had major difficulties once the course was switched to be remote, but not Isaac. He is clearly able to work independently and solve problems on his own, which greatly impressed me.

His work in the other two classes also impressed me. The Women in Astronomy course required weekly papers; Isaac's papers were always a pleasure to read; they were thoughtful and well-written. He clearly has a talent for communication. During the Extragalactic Astronomy course, he stood out among the other majors because of the excellent and insightful questions he asked. In this class, the students made weekly presentations on recent articles in peer-reviewed journals of astronomy. Isaac's

presentations were outstanding, and he was an active and engaged participant in the discussions that followed the presentations. I would rank him as the very best in the course, in terms of his participation in the discussions and the questions he asked. I especially appreciated the gentle way he corrected the errors the other students made in their presentations. I appreciated both his kindness to the other students and his discernment; he noticed details that the other students had missed, and made many astute and thoughtful comments about the articles we were reviewing.

Overall, Isaac is mature, reliable, and responsible, as well as personable and well-spoken. He is a pleasure to have as a student.

Isaac will greatly benefit from participation in a summer research program. Given his history as a transfer student and his late change of major, he has not yet had an opportunity to participate in research. He has the talent and dedication to do well as both a research student and eventually as a graduate student or researcher.

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