STATE OF TENNESSEE
HIGHER EDUCATION COMMISSION
STUDENT ASSISTANCE CORPORATION
312 ROSA L. PARKS AVENUE, 9TH FLOOR
NASHVILLE, TENNESSEE 37243
(615) 741-3605

TO: Bernie Savarese, Acting Vice President of Academic Affairs, Research, & Student Success
         University of Tennessee, Knoxville

FROM: Julie A. Roberts, Chief Academic Officer
         Tennessee Higher Education Commission

SUBJECT: University of Tennessee, Knoxville
         Letter of Notification: Data Science, Bachelor of Science (BSDS)

DATE: October 4, 2023

Thank you for the submission of the Letter of Notification (LON) for the Data Science, Bachelor of Science (BSDS) program. Per THEC Policy A1.0 New Academic Programs: Approval Process, the LON is evaluated on the following criteria: alignment with state master plan and institutional mission; feasibility; institutional capacity to deliver the proposed academic program; and program costs and revenues.

After reviewing the LON, I approve University of Tennessee, Knoxville's (UTK) plan to develop the New Academic Program Proposal (NAPP) for the Data Science, BSDS. As UTK continues to develop the proposed program, all concerns italicized on the attached LON evaluation must be reflected in the NAPP. It is understood the proposed program will be developed in accordance with the mission of UTK and will meet the Master Plan for Tennessee Postsecondary Education 2015-2025 degree completion and workforce development objectives.

cc: Randy Boyd, UT System, President
      Steven Gentile, THEC, Interim Executive Director
      Donde Plowman, UTK, Chancellor
      John Zomchick, UTK, Provost
      Karen Galicia, UT System, Director of Academic Affairs
      Alex Bentley, UTK, Interim Associate Dean
      Ryan Korstange, THEC, Director of Academic Affairs

The evaluation of the Letter of Notification (LON) is in accordance with the THEC Policy A1.0 New Academic Programs: Approval Process. The evaluation is conducted by interested parties and THEC staff. The LON is posted on the THEC website for a 15-day period of comment by interested parties. Based on the internal and external evaluation, THEC will make a determination to support, not to support, or defer a decision based on a revised LON.

Institution: University of Tennessee, Knoxville	**LON Submission Date:** August 21, 2023
Academic Program, Degree Designation: Data Science, Bachelor of Science (BSDS) **Concentration(s):** N/A	
Proposed CIP Code and Title: 30.7001	
Proposed Implementation Date: August 2024	
Time Period Posted on Website for Public Comment: August 21, 2023 – September 5, 2023	
Academic Program Liaison(s): Karen Etzkorn, Director of Academic Affairs University of Tennessee System Phone number: 865-974-2140 Email: etzkorn@tennessee.edu Alex Bentley, Interim Associate Dean College of Emerging and Collaborative Studies University of Tennessee, Knoxville Phone number: 865-974-2678 Email: rabentley@utk.edu	

Note: Comments in italics within this document should be addressed in the NAPP submission.

Letter of support from President/Chancellor	▪ A system letter of support was received from Bernie Savarese, Acting Vice President of Academic Affairs and Student Success, on August 5, 2023. ▪ A campus letter of support was received from John Zomchick, Provost and Senior Vice Chancellor, on July 29, 2023.
Section II: Background	
Background on academic program development	▪ Recognizing the high demand for data scientists, from entry level technicians to specialized research scientists, UTK proposes a Bachelor of Science in Data Science. This program builds on the existing concentration in UTK's Interdisciplinary Program (IDP) hosted by the UTK College of Arts and Sciences, and an existing minor.

	▪ As a result of increased interest across disciplines (enrolling at capacity since its inception in Spring 2022), both the existing Data Science concertation and minor will move to the College of Emerging and Collaborative Studies (CECS), a new interdisciplinary college. This move was planned since the inception of the existing concentration and is supported by the College of Arts and Sciences (the current home for the concentration). ▪ The existing concentration will be inactivated following the launch of the proposed Data Science, BS. A teach-out plan will be offered for the existing Data Science concentration through AY 2028-2029, though students in the existing concentration will have the opportunity to shift to the new program, and all courses offered in the IDP degree will be offered as part of the proposed bachelor's program.

Purpose and nature of academic program	▪ The proposed program expands the existing concentration by adding additional core courses, and will provide significant additional resources, including increased staff, for course delivery, student advising, and internship placements.
	 ▪ The proposed program will be a 120-credit hour program, taken over four years with a hybrid delivery method. The curriculum includes eight sequential core courses.
	 ▪ The proposed program will include internships and capstone courses aimed to prepare students for workforce or graduate school requirements and is open to a wide range of students, from multiple backgrounds.
	 ▪ The program will include a comprehensive list of many approved electives from across UTK, enabling students to design a focus area that matches their interest or aspiration, making the proposed BSDS a flexible and comprehensive program providing critical training in Data Science.
	 ▪ At the completion of the proposed program, students will have:
	     o Developed relevant programming abilities.
	     o Demonstrated proficiency with statistical analysis of data.
	     o Developed the ability to build and assess data-based models.
	     o Demonstrated skill and data management; and
	     o Applied data science concepts and methods to address problems in real-world contexts.

Alignment with State Master Plan and Institutional Mission	▪ The proposed BSDS aligns with the State Master Plan for postsecondary education by providing an in-demand and employable skillset, thereby contributing to the Drive to 55 initiative. The Data Science skills are highly sought-after and incredibly versatile, which will also contribute to the employability of graduates of the proposed program. ▪ The proposed program contributes to UT's land grant objectives by leaning into Chancellor Plowman's recent call for flexible and new

	degree programs that "allow students to master competencies essential for success in the innovation economy." Further, the proposed program supports the UT mission and the goals of UTK in three critical areas. First, by enhancing educational excellence – the proposed program leverages UTK strengths, and existing course offerings to create a new, valuable program. Second, by creating value through economic, social, and technological development – the program will be cultivating internship opportunities for enrolled students. Finally, by fostering outreach and engagement, where students will be taught by industry professionals, the program will be engaged in industry engagement, and the capstone will involve real-world research and outreach projects. ▪ ***Please describe, in greater detail, what internships and jobs are available for students and graduates.***
Institutional capacity to deliver the proposed academic program	▪ The proposed program will be housed in the College of Emerging and Collaborative Studies and will be supported by a Program Directors who will oversee the curriculum and enrollment, appoints GTAs, course scheduling, assessment, accreditation, capstone, and research course contents. Additionally, the program director will be supported by a Program Coordinator, who manages the day-to-day program operations. ▪ The CECS Director of Marketing oversees advising of Data Science Majors. ***Please elaborate on why the Director of Marketing oversees advising for this major.*** ▪ The Director of Partnerships and Economic Development will also engage campus, community, and industry partners to support experiential learning in the program, fostering pathways to student employment. ▪ The addition of this proposed program will allow CECS to offer program components as a data science minor and two 9-credit hour certificates that would contribute to the Bachelor of Science in Applied Transdisciplinary Studies that is currently under THEC review. ▪ The current Data Science program has a campus faculty committee since the Fall semester of 2021. The committee, comprised of 12 faculty members from all undergraduate degree serving colleges, meets monthly to vote on curriculum matters. As a result of the proposed program, the committee will be expanded to include representatives from graduate serving colleges. ▪ The current Data Science program also has an established executive committee and an advisory board comprised of associate deans and external industry partners, respectfully, which will carry over with the proposed program.
Existing programs offered at public and	▪ Several universities in Tennessee offering certificates, bachelor's, and master's degrees in CIP code 30.7001, including:

private Tennessee institutions	○ Middle Tennessee State University (Graduate Certificate, BS, MS, Data Science) ○ East Tennessee State University (MS, Applied Data Science, Program started Fall 2022) ○ Tennessee State University (MS, Data Science, 22 Degrees Awarded – 3 years) ○ University of Memphis (MS, Data Science, Program started Fall 2022) ○ University of Tennessee, Knoxville (Graduate Certificate Data Driven Decision-Making) ○ Vanderbilt University (MS, Data Science) - Several other institutions offer Data Science Degrees with different CIP codes. ○ Belmont University (BS, Data Science, 52.1301) ○ University of Tennessee, Knoxville (Ph.D., Data Science & Engineering, 30.0601)
Accreditation	- The proposed program will obtain accreditation from the Data Science Council of America (DASCA) in AY 2024-2025. - The program will require that a substantive change notification be submitted to SACSCOC.
Administrative Structure	The BSDS major will be housed in the College of Emerging and Collaborative Studies at the University of Tennessee, Knoxville. The organizational chart is presented on pg. 15 of the LON.
Section III: Feasibility Study	
Student interest	- The current Data Science concentration and minor have grown exponentially in one year, from one major and 12 minors in AY 2021-2022 to 16 majors and 76 minors in AY 2022-2023. - DATA 201 has been enrolled at a capacity of 50 students for the past 3 semesters. Enrollment numbers have increased in DATA 202 - as well, with 75 percent of those enrolled students indicating they plan to take DATA 301/302 in the following year. - Testimony from several early cohort students expressing their support for a standalone Data Science major can be found on pg. 16 of the LON. - UTK distributed an online survey to 3915 undergraduates in the Tickle College of Engineering and School of Information Sciences. Of the 281 respondents, 66 percent indicated they would be interested in a data science major.
Local and Regional Demand	- The TN Dept. of Labor and Workforce Development, projects that the "Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services" sector will grow by 43 percent in Tennessee by 2030. Further, data scientists earn about $80,000 annually, with the top ten percent earning over $130,000 in 2021. - Among the top ten regional institutions supplying the labor market with workers in data science, almost all are in Georgia, North Carolina, and Virginia; none so far are in Tennessee.

	▪ According to the US Bureau of Labor and Statistics (USBLS), Data Science has a unique ability to be conducted remotely increasing employment opportunities in nonmetropolitan areas, a high percentage of the southeast region. ▪ According to an Indeed search, 200 entry level data science positions are currently posted in East Tennessee. ▪ According to an analysis conducted by Lightcast for UTK, the proposed program will support the region by graduating students with in-demand skills, where 324,600 total job postings were listed in 2022, with almost 35,000 job openings annually. ▪ The market analysis also showed 232,101 total job postings in the region for data science related fields from August 2022 to July 2023. Of those job listings, 38,000 were unique to data scientists.
Employer Demand	▪ According to an analysis conducted by Lightcast, there are currently 1.8 million jobs related to data science nationally, with a predicted growth of 19 percent in the next 5 years. Though Tennessee is not currently a top 5 data science employer, it is one of the more business-friendly states in 2023, and so it can become a significant employer of data scientists. ▪ According to the USBLS, 113,300 data scientists were employed in 2021, which by May 2022 had increased to 159,630. ▪ USBLS also predicts a 36 percent increase of employment by 2031 with 135,000 data scientist openings annually.
Community and Industry Partnerships	▪ Letters of industry support through internships, sponsoring capstone projects, and hiring graduates were received from multiple organizations including: o Knoxville Chamber of Commerce o Labcorp o XS Power o Lirio ▪ CECS already receives support from various organizations that intend to expand their support to the proposed BSDS, including: o Pilot Company o Nell One o Moment Energy o JTEKT o VIridi Parente o iO Urology

Section IV: Enrollment and Graduation Projections

Projected Enrollment and Graduates	Year	Academic Year	Projected Total Fall Enrollment	Projected Attrition*	Projected Graduates
	1	2024-2025	50	2	--
	2	2025-2026	60	3	--
	3	2026-2027	70	4	10
	4	2027-2028	80	4	35

5	2028-2029	90	5	42

- Initial graduates are projected based on current students enrolled in the Data Science concentration in AY 2021-2022.
- UTK has a first-year retention rate of 90 percent, calculated by first-time, first-year undergraduate students who continue at that school the following year.

Section V: Projected Costs to Deliver Proposed Program

Faculty	One new lecturer will be hired to teach program courses, at a cost of $118,800 (salary + benefits) starting in year one. ***The faculty and instructional costs described in the LON do not match those in the financial projections form, please reconcile.***
Non-Instructional Staff	Hourly undergraduate graders will be hired to complete grading at $20/hour. Thirteen graders will be hired in year 1, increasing to 30 by year 5. ***The cost description does not match that in the financial projections form, please reconcile or provide additional explanation of the costs reported in the financial projections form.***
Graduate Assistants	No graduate assistants indicated at this time.
Accreditation	Estimated accreditation costs for DSCA and ARTIBA are $21,900.
Consultants	A one-time external reviewer cost of $1500.
Equipment	No additional costs associated with equipment needed for this program.
Information Technology	No additional costs associated with information technology are needed for this program.
Library Resources	No additional costs associated with library resources are needed for this program.
Marketing	Marketing expenses will amount to $500 per year
Facilities	No additional costs are anticipated for facilities.
Travel	No travel expenses are specifically associated with this program.
Other Resources	No additional resources will be needed to support the program.

Section VI: Projected Revenues for the Proposed Program

Tuition	The program expects to generate $696,157 in tuition revenue in year 1, increasing to $2,190,193 in year 5. Revenue is calculated as $378 per SCH for Tennessee residents and $759 per SCH for non-residents. The program is anticipating that 20 percent of enrolled students have non-resident status.
Grants	N/A
Other	N/A

Appendices

Letters of Support	- Letters of support were received and attached in Appendix A of the LON from: - Amy Nolan, Vie President for Regional Enhancement, Knoxville Chamber - Adam Sullivan, Executive Director of AI, Labcorp - XS Power Batteries - Lauren Tipton, Head of People and Culture, Lirio

THEC Financial Projections Form	▪ Financial projections provided in Appendix B.
Public Comment	
Public Comments Received	▪ No public comments were received.