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NAVAJO TECHNICAL UNIVERSITY

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ANNUAL REPORT **2021**



DINÉ CULTURE & LEADERSHIP

Navajo Technical University honors Diné culture and language, while educating for the future.
505.387.7401 | www.navajotech.edu | Lowerpoint Rd State Hwy 371 | P.O. Box 849, Crownpoint, NM 87313

**NTU IS ACCREDITED WITH THE HIGHER
LEARNING COMMISSION.**

10 year Approval 2018

**SPECIAL PROGRAM
ACCREDITATIONS WITH:**



Veterinary Technology



American Culinary Federation
The Standard of Excellence for Chefs

Commercial Baking, Culinary Arts



Electrical Engineering, Industrial Engineering



Carpentry, Construction Technology,
Electrical Trades and Welding

MISSION

Navajo Technical University honors Diné culture and language, while educating for the future.



VISION

Navajo Technical University provides an excellent educational experience in a supportive, culturally diverse environment, enabling all community members to grow intellectually, culturally, and economically.



PHILOSOPHY

Through the teachings of Nitsáhákees (thinking), Náhátá (planning), liná (implementing), and Siihasin (reflection), students acquire quality education in diverse fields, while preserving cultural values and gaining economic opportunities.



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Elmer J. Guy, Ph.D.
NTU President

STATEMENT FROM THE PRESIDENT

“This was a challenging year for Navajo Technical University (NTU). Education became a never-ending challenge that forced all of us to not only dig deep into our resilience, but also to stir up the creativity inside us in order to resolve the dilemmas we faced and take advantage of the opportunities that became possible.

What I am most proud about this year is that NTUs students, student families, faculty, staff, and administrators all pulled together to face dilemmas presented by the pandemic head-on and thrive inside of the challenges we were all facing. Indigenous higher education can be a powerful force that finds the endless possibilities that we, at NTU, see in all the classrooms, projects, research, and daily activities with which we are involved. Those possibilities take many forms. For instance, they exist in a hot spot put up by our IT folks, the application to Harvard University for graduate school by one of our biology graduates, hybrid in-class, virtual education lessons developed by overworked faculty, or virtual counseling sessions by our

counseling staff. So many of our trades, STEM, general education, and creative faculty come up with projects to keep students engaged and learning and becoming better able to not only take care of their families, but to serve the Navajo or Zuni communities of this area. This learn-by-doing approach helps define the dynamism that is Navajo Technical University. It also is engaged with the heart of the Diné Philosophy of Education that gives all of us the spirit of what this university is all about.

We have met the pandemic challenge and turned it into a year of endless possibilities that has enriched the lives of our students, our faculty, our staff, the families of our students, and the Navajo and Zuni Nations themselves. The truth is that despite all the challenges we have faced, we have ended this year stronger and more dynamic as an institution of higher learning than we were a year ago. This has been an extraordinary year. “



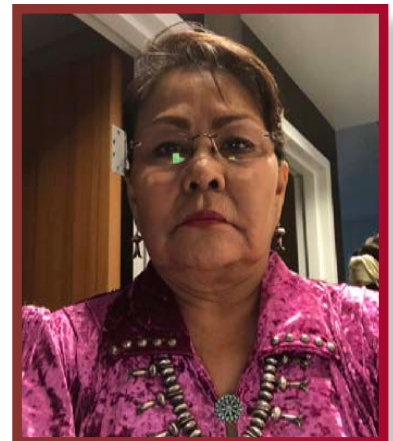
NTU / Board of Regents



Tom Platero
Board Chairperson
Fort Defiance Agency

Tom Platero was confirmed as the Division Director for the Navajo Nation Division of General Services on March 26, 2021. Prior to his appointment, Platero served as the Executive Director of the Navajo Nation Office of Legislative Services from 2012 to 2020 and previously served as the Division Director for the Navajo Nation Division of Transportation from 2004-2011. His professional experience includes serving as the principal contract analyst for the Department of Workforce Development and the Assistant Department Manager for the Department of Head Start. Platero is tasked with over-seeing the Telecommunications and Utilities Department, Department of Information Technology, Employee Housing Program, Facilities Maintenance Department, Insurance Services Department, Records Management Department, Air Transportation Department, Navajo Transit System, and the Fleet Management Department.

Delores Greyeyes is from Keams Canyon, Arizona, and is of the Tó dích' í 'ni and Tó 'á haní clans. She has a Bachelor's and Master's degree in Social Work from Arizona State University. In May 2018, she graduated with a Ph.D. in Social/Criminal Justice. She served as the Quality Assurance Specialist with the Navajo Nation. While in this position, Dr. Greyeyes developed the DSS Case Management Continuum. Today, she serves as the Director of the Department of Corrections with the Navajo Division of Public Safety.



Dr. Delores Greyeyes
Board Vice Chairperson
Western Agency



Roselyn John
Board Member
Eastern Agency

Roselyn John is of the Tódik'ozhi and Tábaahí clans from the Chichiltah Community, adjacent to the Pueblo of Zuni. She holds a Master's Degree in Educational Leadership. As an advocate of Navajo language and culture, she has been an educator for early childhood and community education, a former Navajo Nation Council Delegate, Chapter Official, and School Board Official. She is currently with the Navajo Nation Division of Community Development.

Carolyn Thomas Morris, Ph.D., grew up near Shiprock, New Mexico, and is of the Bitter Water and the Tangle People clans. Dr. Morris earned her undergraduate degree from Fort Lewis College and her Master's and Doctoral degrees in Psychology at Utah State University. Dr. Morris returned to New Mexico to become a licensed Psychologist. Her focus can be seen in engaging communities and healthcare systems to improve the quality and cultural responsiveness of care; and strengthening health literacy and engagement of healthcare consumers from under served communities. She currently works as a psychologist for a Tribal Health Organization.



Dr. Carolyn Morris
Board Member
Shiprock Agency



Gloria Grant
Board Member
Chinle Agency

Gloria Grant is half Navajo and half Omaha Indian; her clans are Todichinii born for the Deer Clan of the Omahas, her maternal grandfather is the Kinyannii Clan and her paternal Omaha grandmother is the Wind Clan. She is originally from Chinle, Arizona which is located in the beautiful heart of Navajo land. Gloria is a lifelong educator and served in many capacities helping her Navajo people. A former rodeo trick rider, she holds a Master Degree in Education Leadership and retired as Associate Superintendent for Chinle Public Schools. Along with her two sisters they team as educational consultants. She enjoys traveling, cooking, has two sons and three grandchildren.

Deirdra Deswood is of the Ma'ii Deeshgiizhnii nishli, Tabaahi bashishchiin, To aheadliinii dashicheii, Totsohni dashinal clans. She is from Round Rock, Arizona, and continuing her education in Industrial and Mechanical Engineering with a minor in mathematics at Navajo Technical University (NTU). While attending NTU, she worked as an Intern in The Center for Additive Manufacturing (CAM) laboratory and served her time as the student senate president 2020-2021, she has gained the experience of representing her student body by being their voice to the board of regents. She has come to understand the history of our institution and its ever-growing future for our people.



Deirdra Deswood
Student Senate President

History / Persistence / Vision



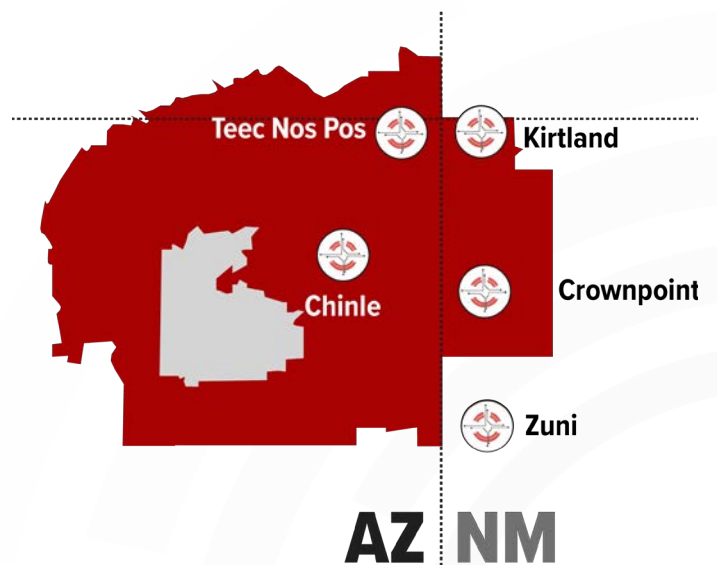
Navajo Technical University has had several identities during its history. It started as Navajo Skills Center in 1979, focusing on vocational education programs associated with the construction trades or office work. Then it became the Crownpoint Institute of Technology (CIT) in 1985 to offer quality instruction in technical and vocational fields, concentrating at first on Certificates and then, shortly afterward, on associate of applied science degrees. In 2002 CIT achieved Candidacy for Accreditation status with the Higher Learning Commission. Then it became fully accredited on October 17, 2005, reflecting the growth in both the number of associate degree programs and certificates in place at that time. Then, in 2006 NTU established the first instructional site for the college in Chinle, Arizona. This development was one of the reasons behind yet another name change, in 2006, to Navajo Technical College (NTC). NTC then launched its first baccalaureate degrees in 2010 in Information Technology, Digital Technology, and New Media. This accomplishment was followed up by the accreditation of NTU's first Masters' degree in Diné Language, Culture, and Leadership in 2013. In that same year, the college became Navajo Technical University.

NTU's history shows that from the very beginning, the various boards and staffs of each iteration of the college, then university, two qualities were ingrained into its growth: economic and social development for Navajo people. Since the Navajo Skills Center was founded, there were not many jobs available to the Navajo people on the Navajo Reservation. Our Navajo Nation leaders thought that they could improve that situation by building an institution that provided skills, documentation, and training that qualified people for the jobs that existed on and off the Reservation. When that training was not enough to help enough individuals improve their position, CIT was established with the idea that certificates and even associate degrees could help more Navajos achieve careers that would benefit their families and the Navajo people. As CIT developed, it pursued the possibility of becoming a

baccalaureate degree-granting institution that could help address individual career aspirations. The aspirations of the Navajo government for economic and social development became the obvious next step, which was then taken, resulting in naming technology institute NTC. Following this path led directly to achieving the first accredited graduate degree and the renaming to Navajo Technical University.

Also, integrated into this history is the power of the vision that is built into NTU. As the institution developed, the various leaders saw possibilities for development that would benefit students and the Navajo Nation as a whole. Over time a skills training center became a research university with aspirations for capturing intellectual property that can provide long-term social and economic benefits that will help solve some of the challenges that have faced the Navajo people from the time after the Long Walk. Throughout its history, NTU has seen opportunities on the horizon and moved to turn those opportunities into programs, projects, and degrees that help individuals, families, and the entire nation.

5 LOCATIONS ACROSS THE NAVAJO NATION



New Mexico: *Crownpoint, Kirtland, and Zuni.*
Arizona: *Chinle, Teec Nos Pos.*



SKYHAWK HIGHLIGHT

WINDOW ROCK, AZ - In 2021, Ms. Grant was selected along with eight outstanding Navajo women to meet The First Lady of The United States, Dr. Jill Biden. The purpose was to host a round table on critical needs in health, social welfare, and education on the nation. Ms. Grant said of the experience, "It was an honor to meet her and engage face to face in educational items needed at all levels".

OUR STORIES

NTU FALL 2021 GRADUATION
Crownpoint, NM



PERSISTENCE

NTU CYCLING TEAM
Durango, CO



NTU CYCLING TEAM

On October 14-17, the team completed their inaugural season at the Relay Nationals Championship Race in Durango Colorado. The team placed eighth overall as a relay team and among their classification as a division two they placed third overall. They were challenged throughout the race that presented four laps at 1.4 miles each, trekking a grueling course of mud at a 9,000 feet elevation. The NTU team that competed in its first season were LaBelle LaFrance, Joel Yazzie, Thomas Nimrod and Chelsea Begay. For the women's team, Chelsea Begay was unable to compete, placing Ms. LaFrance in competition to complete two extra laps for the women's team. Athletic Director George LeFrance was pleased with the outcome of the cycling program's debut and hopes to see more students participating in the upcoming season.



CaJuan Cleveland MISS NTU 2021-2022

Ambassador for Navajo Technical University of 2021. She is originally from Pinedale, NM, and is pursuing a Nursing Assistant certificate.



OUTDOOR CLASSROOMS

Outdoor Learning Spaces. Students from various departments assembled to design and construct outdoor learning spaces at the main campus in Crownpoint, NM. This particular learning space will overlook the campus east of the cafeteria at the main campus. These projects are part of NTU's initiatives to provide a safe learning environment for all students due to the COVID-19 pandemic. These outdoor learning facilities will be constructed at each of the locations in Kirtland, NM, Zuni, NM, Teec Nos Pos, AZ, and Chinle, AZ.



Crownpoint, NM - On July 26, 2021 NTU conferred degrees on six candidates for Master of Arts in Diné Culture, Language and Leadership. Pictured (L-R) Ronda Joe, Leslie Tsoisie, Tyler Tinhorn, Jennifer Gross, and Angelita Darwin. Myra Tuttle was not in attendance but was recognized as part of the cohort that were honored. Thank you for supporting our graduates. Good luck to them and congratulations!

**CONGRATS
GRADUATES!**

Master of Arts in Dine Culture, Language & Leadership Degree Program



The Navajo Technical University, Master of Arts in Dine Culture, Language and Leadership Degree program would like to highlight three graduate students who have successfully passed their Master Thesis Presentation and Oral Defense. Our Candidates are Natalie Denezpi, Kathleen Jim, and Brenda Yazzie. These graduate exams were held in person while following CDC protocols to ensure our student and faculty safety. The Master Thesis Committee consisted of Dr. Dianna R. Dekelaita-Mullet, Professor of Psychology; Brian Connolly, Lecturer of English; Dr. Siri Tuttle, Professor of Linguistics; and Dr. Jennifer Wheeler, Dean of Graduate Studies.



CROWNPOINT, NM – January 20th, 2022 our former governor Bill Richardson paid a visit to Navajo Technical University and toured NTU’s laser technology, environmental science program, and proposed COVID-19/ radiation testing facilities in partnership with Sandia and LANL for internships and job creation. He also listened to many presentations from various departments of many projects that NTU is working on. Under his leadership, Governor Richardson helped lay the foundation for NTU with a National Science Foundation grant for infrastructure; he was also instrumental in the creation of the Hospitality Center and helped with the expansion of the Culinary Arts degree programs. NTU will be forever grateful for his advocacy for our Tribal university.

CROWNPOINT, NM - Navajo Technical University (NTU) has been selected as one of the 2021 Equitable Pathways Grantees by the Alfred P. Sloan Foundation. This is a major step towards generating transformative ideas that remove obstacles for minority student pathways to graduate school particularly the STEM areas with a special focus on Native American students.

Link: <https://sloan.org/grant-detail/9649>

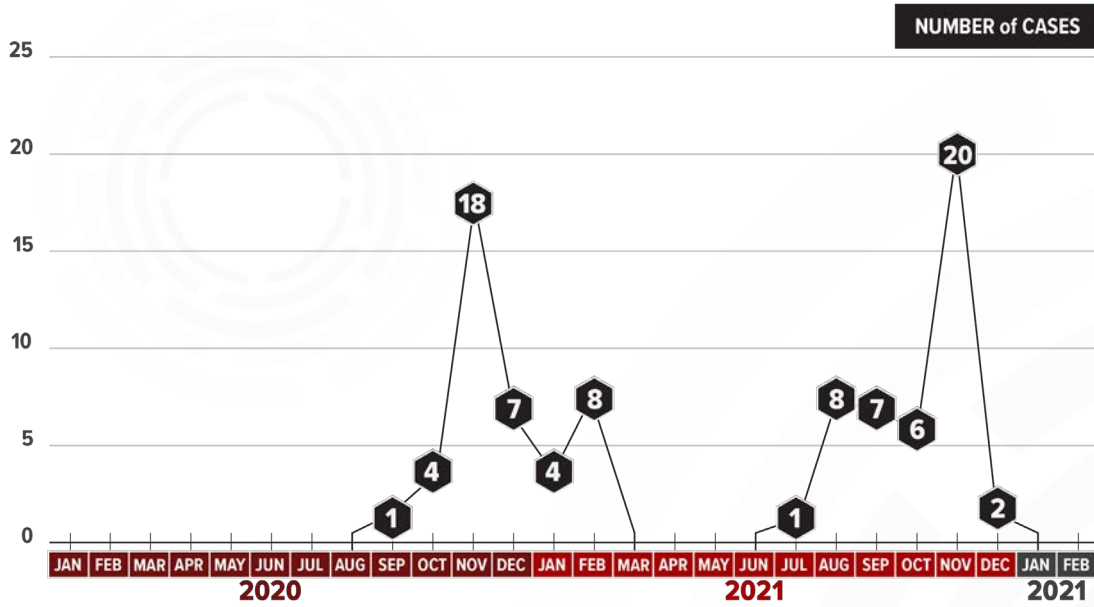
The Pandemic Challenge and NTU's Success at Addressing It



In 2020, a new kind of challenge impacted NTU's operations. The COVID-19 pandemic spread throughout the Navajo Nation and the border areas in New Mexico, Arizona, and Utah. As a result, a tremendous number of people were affected by the pandemic. It quickly became clear that the university would have to re-strategize its operations and move forward with its e-learning resources. NTU's goal was to create hot-spots for broadband Internet connectivity close to where students lived. Despite enrollment dropping during this time, NTU continued to rise to the challenge to master the latest deep-cleaning techniques and come up with a plan on how to address students in the dorms who had no other place to live. Fortunately, NTU had put into place one of the most substantial technology infrastructures among the tribal colleges and universities early in its NTC days. It developed an award-winning e-learning system that was more than adequate to deliver online classes. The E-Learning Department put into place training modules for faculty that were instrumental in helping faculty transition to the online learning platform, and the faculty came through impressively, learning how to use the various distance learning tools and software available to them.

NAVAJO TECHNICAL UNIVERSITY

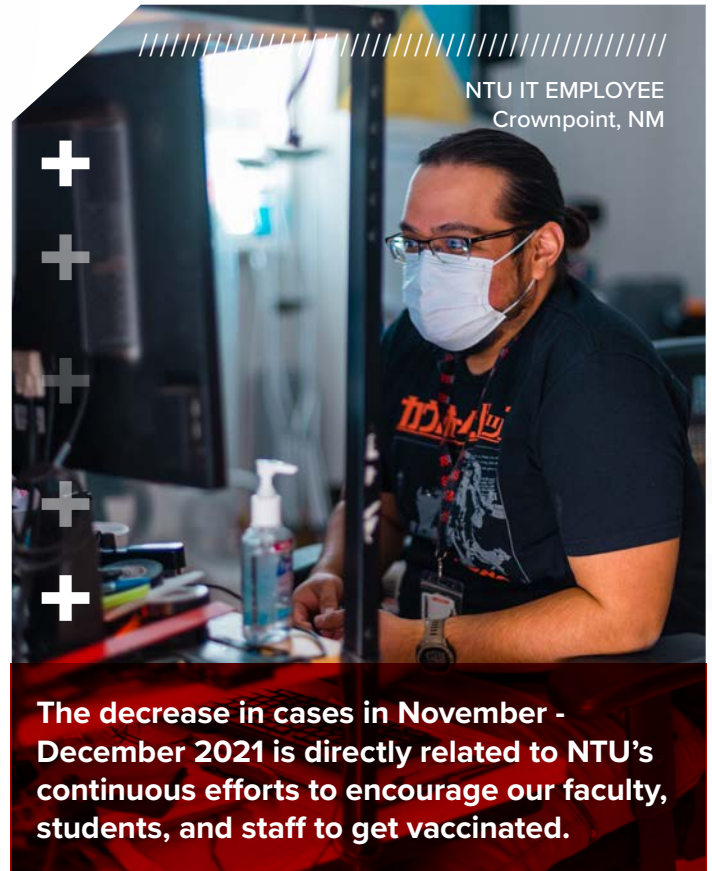
SELF-REPORTED CASES for ACADEMIC YEAR 2020-2022



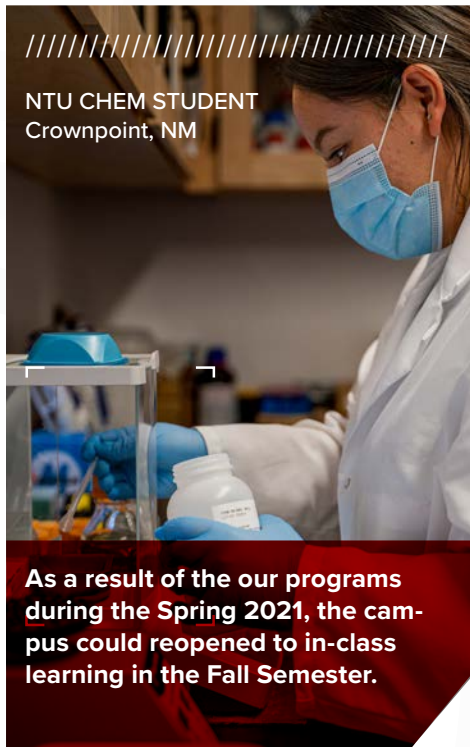
By the Fall of 2021, the pandemic was still spreading; the above chart traces self-reported cases among faculty, staff, and the student body at NTU from 2020 to 2021.

As a result, the December 2021 data about vaccination status is as follows:

- Total NTU employees vaccinated: 99%, the 1% are new employees turning in their vaccination cards.
- Total NTU students vaccinated: 95%
- Data on booster shots is coming in every day, but numbers fluctuate as new data comes in: Approximately 20% of NTU employees have been boosted as of early-December 2021.
- Based on the graph shown above, these are individuals (faculty, staff, and students) who have tested positive for COVID-19 throughout all campuses. With the previous increase in Nov. 2021, it revolves around being off-campus individuals who came in contact from their homestead but are required to complete the 14-day quarantine NTU has set in place. Normally when an individual has tested positive, they are immediately put on a 14 day self-quarantine and not allowed on campus. Nicole Pino, the NTU COVID-19 Education Specialist, who oversees this process, makes a follow-up with telephone calls and does contact tracing. The individual can return to campus once they can provide a negative test result to Nicole Pino who reviews the process to determine if they can return in person. With a simple 15-minute COVID-19 at home test kit, provided to everyone through Ms. Pino's office, results can determine an individual's status.

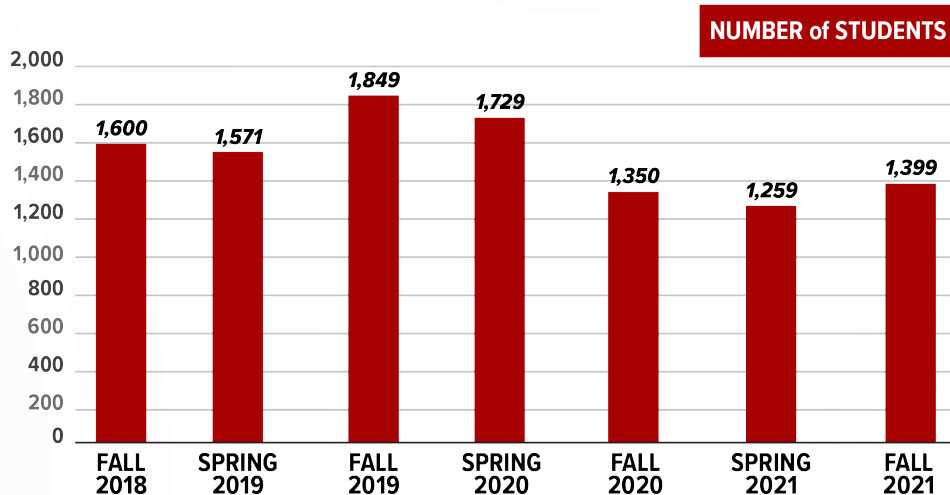


Enrollment Data and Analysis



This reopening had a definite impact on enrollment:

NAVAJO TECHNICAL UNIVERSITY Enrollment Trend



Prior to the pandemic, the Fall 2020 enrollment exceeded expectations, though there was a slight drop in enrollment in Spring 2021. NTU initiatives continue to address enrollment issues that have had an adverse effect on enrollment during the pandemic.



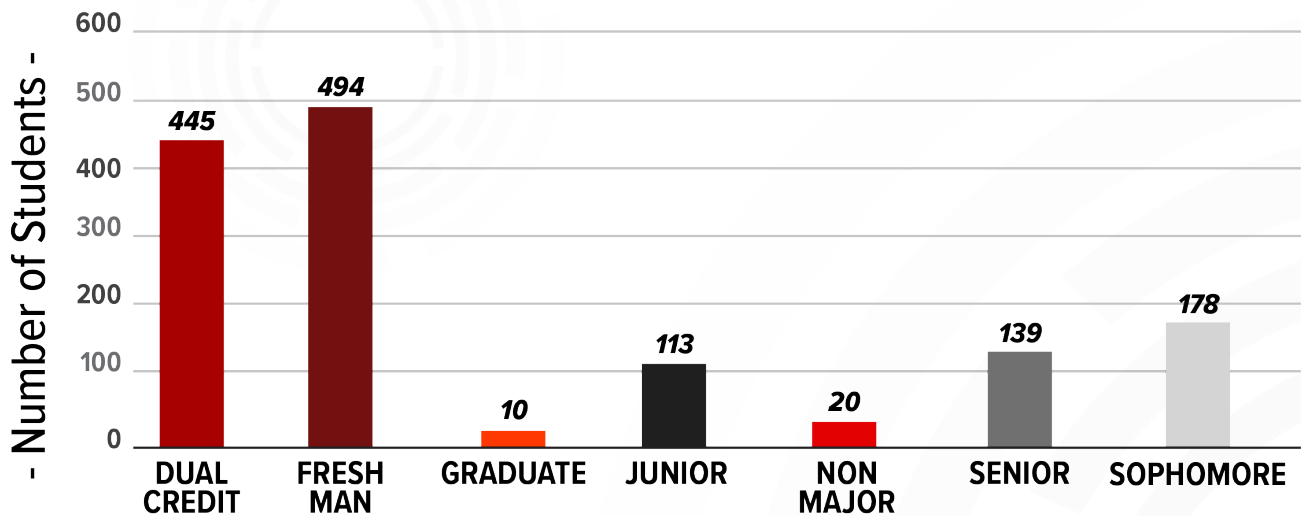
SKYHAWK HIGHLIGHT

Over the Spring and Summer of 2021, the NTU American Indigenous Business Leaders (AIBL) Chapter members attended two competitions that were virtual and in-person. The outcome of both competitions led to the NTU AIBL Chapter placing first and is a great example of our students applying their business acumen and education to real world business practices. Each competition required a business plan that included various requirements such as teamwork, analyzing data, and making

business decisions. NTU is proud of our students taking on opportunities to further themselves to pave the way for future students. With the help of their advisors, Tilda Woody and Hondo Louis, they continue to provide excellent mentorship and guidance for the NTU AIBL Chapter. Despite the pandemic, our faculty rose to the challenge during these competitions to make sure our students had the support they needed. The NTU AIBL Chapter members consist of DeeAnna L. James, Cinandre Dolfen, Micheryl Miller, Judith Sam, Kaitlin Freeland, and Kari-April Gibson. Congratulations NTU AIBL Chapter!

Other enrollment data follows:

FALL 2021
Enrollment by Student Classifications



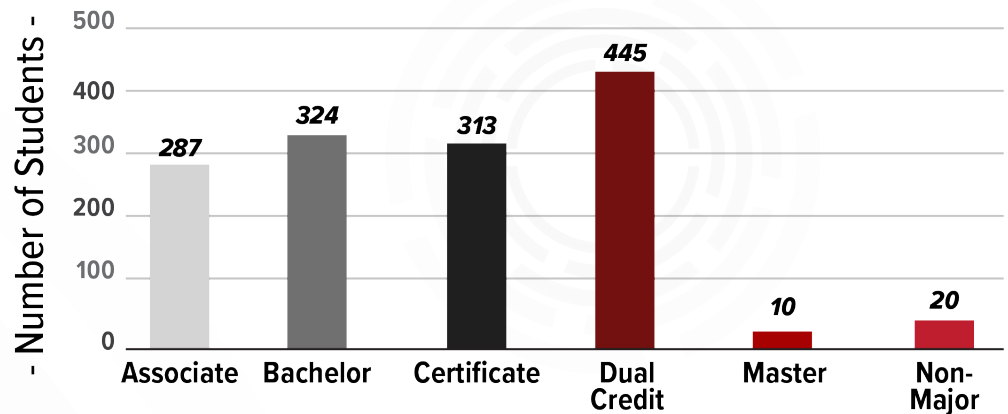
Given the difference between first- and second-year enrollment and the retention data for third-year students, NTU has done significantly well with its fourth-year retention. This is based on initiatives the university has implemented before the pandemic. With the current status, NTU has begun to strategize several retention programs to assist our second- and third-year students.



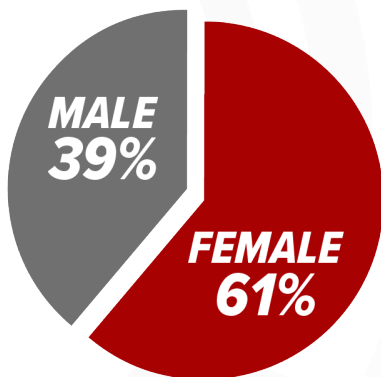
The dual-credit program is a vital academic route to NTU. NTU gives students the opportunity to increase college/university success and contribute to the Navajo Nation's long-term future. An overall increase in the secondary education population will strengthen NTU over time considering a majority of our students possess a family history of college education in contrast to our first-generation students populations. NTU continues to successfully market its degree options to students enrolled in dual-credit programs. The quality and strength of the dual-credit programs and degrees match or exceed higher education institutions in New Mexico, Arizona, and Utah.

The NTU baccalaureate degree enrollments have seen a steady growth and have now exceeded the associate's degree and certificates enrollments. In contrast, NTU's graduate degree enrollments have been slightly low despite the new program in Management Information Systems (MS) in addition to the MA in Dine Culture, Language, and Leadership.

FALL 2021 Enrollment by Degree Level



FALL 2021 Gender Enrollment

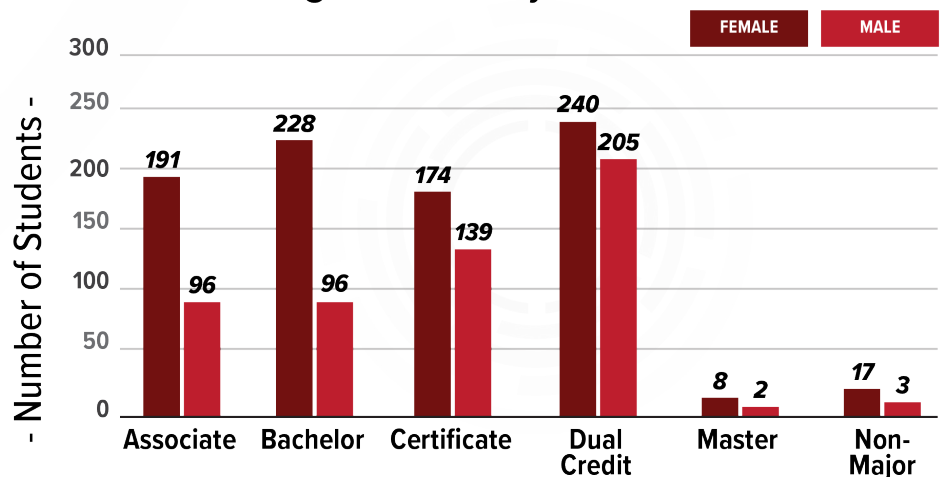


CONTINUED GROWTH

As of Fall 2021, the trend in the ratio of female enrollment to male enrollment is towards female enrollment continuing to outpace male enrollment. The data clearly show the prevalence of female registrations across the board. With female students far outnumbering males among Dual-Credit enrollments, NTU degree programs have a higher registration rate for females than males. NTU would need to develop a strategic plan with the data to improve engagement with potential applicants of both genders. This is an essential component for Navajo Technical University to become a research institution.



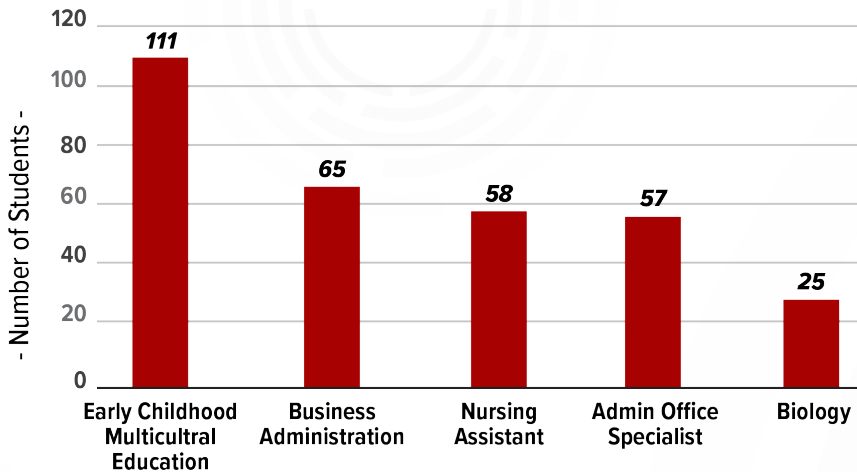
FALL 2021 Degree Level by Gender



ENROLLMENT

FALL 2021

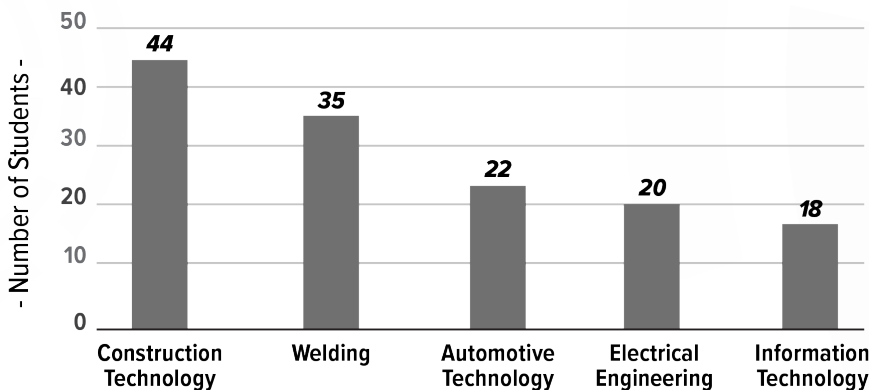
Top 5 Degree Programs selected by Female Students



The data trend shows that our academic programs in trades and engineering are a key component in the male student population. Our general principle of continuously increasing enrollment is expressed in our most pursued academic programs such as Business Administration, Administrative Office Specialists, Nursing Assistant, and Biology.

FALL 2021

Top 5 Degree Programs selected by Male



The pandemic has highlighted the institution's strong suits, while also placing emphasis on the programs that require more attention. The university has implemented rigorous strategic retention efforts in the programs of Automotive Technology, Construction Technology, Electrical Trades, Commercial Baking, Professional Cooking, and Culinary Arts.

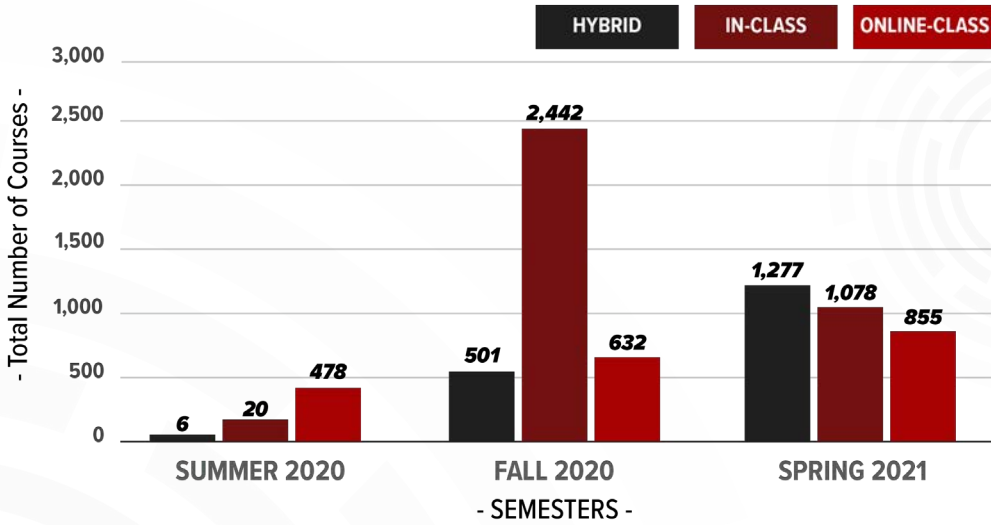


SKYHAWK HIGHLIGHT

NTU would like to recognize Environmental Science and Natural Resources graduate Dalyna Hannah of Ramah, NM for being accepted into the Bridge to Doctorate Program for a Ph.D. in Natural Resources at the University of Idaho. She received a full tuition scholarship and a living stipend for the duration of her degree. Congratulations, Dalyna!

- Summer 2020 NASA AFRC - Magnetic Two-Body Separation System Development Project.
- Spring 2021 NASA KSC - Mechanical Engineering for Excavation Robot Design and Fabrication Project.
- Summer 2021 NASA LRC - Common Wind Platform Development - Software, Automation, and Autonomy Project.

NAVAJO TECHNICAL UNIVERSITY
NUMBER OF COURSES for ACADEMIC YEAR 2020-2021

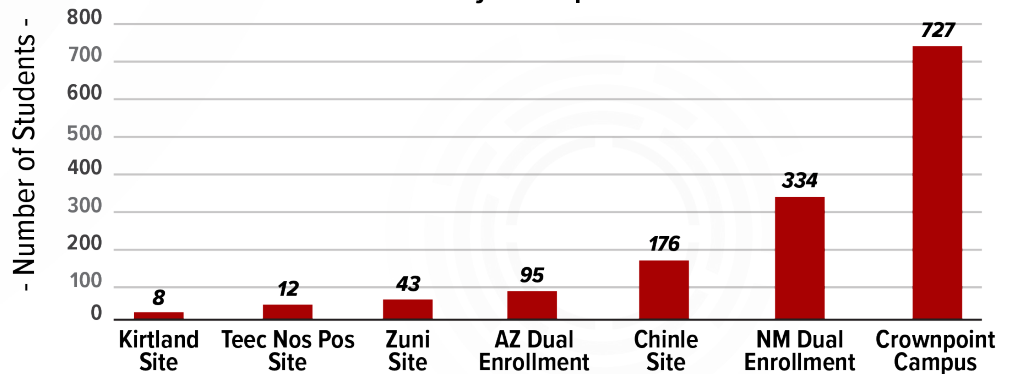


What's clear from this chart is that most NTU students want to attend in-class, or, at the very least, hybrid classes that utilize E-Learning tools but still have significant in-class components. However, even though in-class and hybrid options were fully available, many students continued to enroll in online classes suggesting the importance of offering online academic programs.



NTU's Zuni instructional site data trend shows a constant increase in enrollment. Strategic enrollment efforts at the Zuni site were examined and are being implemented at other NTU instructional sites in order to reverse enrollment data trends.

FALL 2021
Enrollment by Campus Location



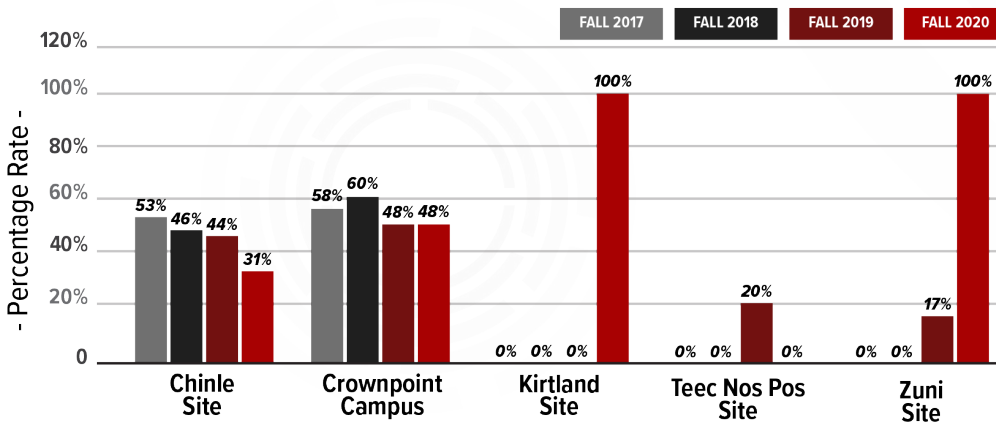
Retention Data



NTU sites have seen a slight decline in their retention rate since the pandemic hit excluding the Zuni Site. Our Chinle site has experienced a drop in its retention since Fall 2017 but continues to persist during this pandemic. The main campus in Crownpoint remains a vital instructional site with the best retention rates since 2017 suggesting the positive effects of the implemented retention programs. Once the pandemic hit, there was a significant drop off in the retention from each fall semester but in 2020, NTU students continue to hold well from the 2018 semester in their retention rate. A sixty-percent retention rate is among the best for any TCU in the country and accommodates further development for post-pandemic retention rates.

NAVAJO TECHNICAL UNIVERSITY

First Time, Full Time, Degree Seeking Students Retention Rate



The retention and enrollment rates at the Zuni and Kirtland Instructional Sites are promising as they are steadily increasing. Multiple ways of increasing registration have been successfully implemented at Teec Nos Pos in pursuance of reversing the data trend shown.

Construction of new Classrooms and Laboratories



On November 29, Navajo Technical University held its groundbreaking ceremony for its new state-of-the-art academic complex to be constructed on its main campus in Crownpoint, NM. The 27,489 square foot building will have 13 classrooms, two large vocational classrooms, and 14 faculty offices. The building is estimated to be completed in December 2023.

Chinle

NTU launched a CDL and Heavy Equipment program at the Chinle site. Twenty-four (24) students are participating in the current Police Academy program. Joshua Jeffery was hired to oversee the program as the Police Academy Coordinator/Assistant Professor of Law Enforcement.

Kirtland Site

A plumbing Lab at the Kirtland site was completed in July 2021 and received the American Indian College Fund's Community Based Native Arts Learning and Sharing Grant in September 2021. Master Artist Cal Nez, the Culture Bearer Kevin Belin, and Chef Lorencita Billiman give presentations and teach at this site.

Teec Nos Pos

A 600-square-foot building is being constructed for the welding program at Teec Nos Pos. In addition, NTU hired a full-time technical instructor to teach in the electrical trades.

Zuni Instructional Site: Ashiwi College & Career Readiness Center - ACCRC

Funding: The ACCRC staff received several grants to support local programming, including \$250,000 from W.K. Kellogg Foundation (WKKF) to support the development of a Creative Arts and Entrepreneurship Center; \$450,000 to support the development of an Early Childhood Zuni Language Immersion program. To provide professional support to Zuni language teachers; they received \$100,000 from NM PED-Indian Education to support Social Emotional Wellness in collaboration with the Zuni School District for secondary students. \$100,000 from the New Mexico PED-Indian Education to revitalize the Zuni language, curriculum, and implementation. They received; \$2.1 million in ARPA tribal funds for two capital projects at ACCRC and an additional \$880,000 in tribal funds for ACCRC operational support.

Real Time PCR Training for COVID-19 Diagnosis at the Biology Program, School of Science, NTU

In partnership with the Salt Lake City-based Molecular diagnostics company Co-Diagnostics, Navajo Technical University (NTU) at Crownpoint embarked on training students on how COVID-19 is accurately diagnosed using Real-Time Polymerase chain reaction (RT PCR). The biology program strictly followed the NTU prescribed COVID-19 guidelines. In addition, it developed an in-house real-time PCR test using the Co-Primer technology developed by Co-Diagnostics Inc., with the Biology program coordinator, Dr. Irene Anyangwe, Chair of the School of Science, and Dr. Palmer Netongo, Assistant Professor of Biology, who is responsible for the COVID-19 testing at NTU. This is just one of the testing methods utilized by NTU, in addition to home tests and local IHS services.



SKYHAWK HIGHLIGHT

NTU would like to congratulate our first Biology graduate Mr. Robinson Tom for receiving the Post Baccalaureate Degree Admission to Harvard University through the NSF PREM project. Robinson is the first student to join Harvard University for higher studies. The NSF PREM project PI Dr. Thiagarajan Soundappan would like to thank the NTU administration, faculty, Harvard University, and NSF PREM division for this success. "Through this NSF PREM project, we build a strong pipeline (research and education) between NTU and HU," explained Dr. Soundappan.

COVID-19 testing at NTU is conducted using decontaminated saliva samples, collected in tubes (with proprietary virus-inactivation solutions) adapted for that purpose, developed by Spectrum solutions in Utah. Testing is open to all students and staff, including Chinle Site and other instructional sites. Following other instructional sites, following a presentation of the strategy and its approval by the COVID-19 Task Force at NTU.



Participants at the training Seminar. From Left to right. Dr Casmir Agbaraji, Raysheldon Laughing, Michael Nelwood, Jerrilynn Charley, Dr. Irene Ane Anyangwe, Joshua Platero, Dr. Palmer M Netongo, Adam Cook, Breanna Thomson, Harrison Cayatineto. Picture taken by Melvin Foster.

Accreditation of Online Programs

ONLINE LEARNING

NTU MAIN CAMPUS
Crownpoint, NM

An emergency approval for online classes was approved by the Higher Learning Commission (HLC) despite the pandemic challenges that delayed the HLC approval. Our Provost and Dean collaborated to gain accreditation for the following online classes and programs:

- Accounting
- Business Administration
- General Studies
- Mathematics
- Public Administration

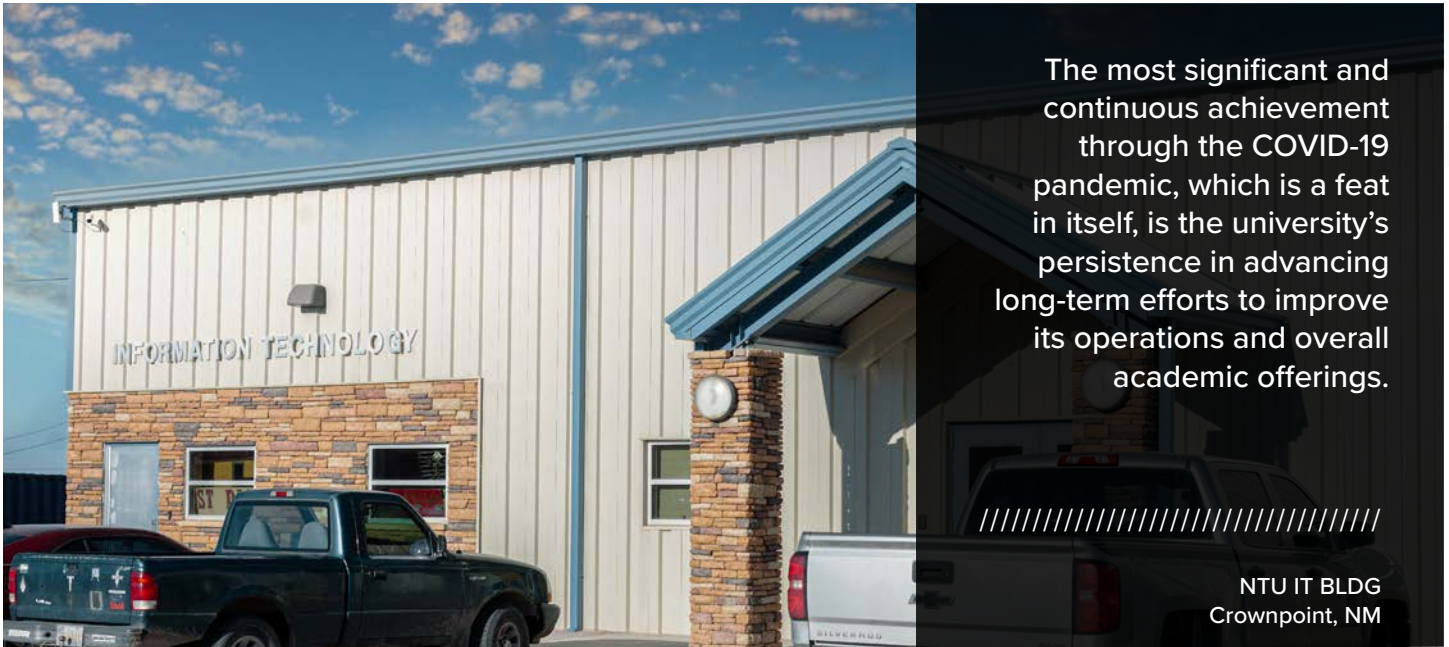
These online programs are now fully accredited to be offered online through NTU's E-Learning system.



NTU STUDENT
Crownpoint, NM

The Pandemic, Information Technology, and Continued Progress

One of the most significant achievements of NTU during the early days of the pandemic was its ability to put into place hot spots at different locations on the Navajo Nation. In addition, NTU helped its students with laptops, E-readers, and other technology to help students access NTU's vital E-Learning resources. NTU IT Department also upgraded facilities to help them meet the crisis.



The achievements of the Information Technology department are emblematic of NTU's overall achievements during this period:

- IT projects have spanned all NTU's campuses and instructional sites. For example, several classrooms at Crownpoint, Chinle, and Bond-Wilson in Kirtland have implemented computer technology upgrades with state-of-the-art telepresence technologies.
- NTU received an NSF Cyberinfrastructure award to improve external connectivity, deploy a homework gap pilot, and plan and build a science network for campus faculty/researcher use with the Front Range GigaPOP (Denver) in 2019. NTU's current 100 Gbps network connection to Albuquerque results from NSF and CARES Act funding that directly improves services for all NTU faculty, students, and staff. NTU installed the campus Science DMZ (or specialized network) in Fall 2021, and the wireless pilot will soon follow. NTU's participation in the NSF Cyberinfrastructure program has improved and demonstrated the engagement with national research collaborators such as FRGP, Sun Corridor Network, the Western Regional Network, The University of New Mexico, and the Internet2's.
- NTU is the lead tribal college and university (TCU) in cooperation with Diné College, Ahshiwi College (Zuni), and the Tohono O'odham Community College (Tohono O'odham) to plan and build a campus network designed to improve science-oriented workflows, to improve external connectivity, and to demonstrate the use of alternative wireless for student use at home. The NSF-funded project established a Tribal Consortium of regional TCUs to implement their campus network and homework gap solutions in Fall 2021.
- NTU is working with other tribal organizations in New Mexico to plan and implement an advanced research and education external connection to the Internet, additional regional education, and research providers. Working with

internet service providers (ISP) to reduce the cost of connectivity, improve diversity (so that the network doesn't go down), and establish a foundation for new specialized network services in Albuquerque, NTU will collaborate with other tribal organizations, with funding from the NTIA Tribal Broadband program and others, to build new fiber between tribes and tribal education. NTU will prepare another NSF Cyberinfrastructure proposal to secure collaborations with Internet2's, the Front Range GigaPOP, UNM's ABQ-G, and Sun Corridor Network (Arizona) to bring new high-speed connectivity tribes in Fall 2022.

- In cooperation with Sacred Wind Communications, with CARES Act funding, NTU's collaboration has deployed new and advanced wireless services in Crownpoint, NM, and in other New Mexico locations to help reduce the digital service gap on Navajo. The collaboration enabled SWC to install and provide connectivity to students and residents of Crownpoint once the Navajo Nation completes its FCC Tribal Priority Window spectrum allocation. In addition, pilot projects with the Navajo Nation Department of Diné Education and other universities have been initiated using a Navajo Nation-approved special temporary authority (STA).
- In cooperation with the Navajo Nation Department of Information Technology (NNDIT) and funding from the CARES Act, NTU has facilitated and deployed pilot Eduroam services at the Church Rock and Crownpoint chapter houses. Additional chapter houses will be added throughout the summer. The expanded and rebuilt wireless systems at chapter houses improve wireless reliability and introduce Eduroam services. NTU plans to install Eduroam in summer 2021 for students, faculty, and staff. NTU is also assisting Diné College's efforts to install Eduroam.
- Internet2's Eduroam service enables federated wireless access to 500+ institutions of higher education and 106 international sites. The expansion will improve NTU student, faculty, and researcher access to national resources at participating institutions. NTU is joining Northern Arizona University, Arizona State University, the University of New Mexico, and others to extend WiFi logins access for research, teaching, and learning wherever Eduroam is available.
- In support of NTU's design and deployment of a science-oriented network on campus (with the National Science Foundation's help), IT is collaborating with the University of Maryland, Baltimore County, to install a ceilometer. The ceilometer will collect atmospheric data, return it to UMBC, and provide a data sharing exchange with Northern Arizona University. Adding science instruments to NTU's research network will help improve science and engineering instruction on campus.
- Northern Arizona University – PhenoCam Project. NTU IT plans to deploy cameras on campus to collect environmental data for researchers, students, and faculty. The PhenoCam Network, which uses digital cameras to track vegetation phenology and seasonal changes in vegetation activity across North America and worldwide, has invited NTU faculty and students to participate in their research. The PhenoCam project will use NTU's research network to collect and share data.
- NTU joined the Front Range GigaPOP in 2021 to improve external connectivity and acquire advanced engineering expertise. NTU now has access to Internet2's (I2) national routes and services. By joining I2's InCommon program, NTU can participate in national and international programs to improve academic and technical resources access. As a national leader in research and shared infrastructure, NTU's participation in InCommon improves access to collaborations that share a library, identity management, and other resources. NTU plans to join InCommon in Summer 2022.
- NTU and an alliance of eligible telecommunications carriers (Sacred Wind Communications, Smith Bagley Inc., and Frontier Communications with Diné College) established an informal cooperative plan. They propose the development of the Navajo Nation's National Telecommunications and Information Administration (NTIA) Tribal Broadband proposal. The Alliance enables effective communication and project support for university projects directly impacting students. NTU and Diné College are some of the few TCUs leading the NTIA proposals that service tribal communities. The Tribal Broadband program will fund \$980 million in improving broadband for unserved or underserved families on tribal lands.

STRONGER TOGETHER



Significant Progress in Improving Financial Management



Mirroring the accomplishments in IT, Financial Services has also overcome the challenges of the pandemic and made significant strides toward improving systems that have been problematic for decades.



NTU STUDENT UNION BLDG
Crownpoint, NM

The list of major accomplishments of the department is as follows:

- NTU completed two years of financial audits brought current for FY19/F20. FY19 completed December 1, 2020. FY20 ended August 30, 2021
- NTU has established its first Investment Services with Vanguard. The \$12 million gift donation and \$8 million are now being invested. This is the first step in establishing a viable long-term endowment for the university and represents part of a larger strategy to strengthen programming related to student engagement and economic development.
- Streamlined Annual Budgeting is processed under strategic plan 2.1. Budget data has been uploaded for FY21-22 into Jenzabar Budget Module, and report extracts are now available on NTU Website by the cost center.
- The purchasing process has been streamlined by shifting to online submission of all documents in order to expedite the Purchase Order process. This has started the process to clean up the delays in getting purchases completed that have been a problem faculty and staff have faced for years.
- It has cleaned up the chart of accounts information in Jenzabar to improve expenditure reporting for all grants. By doing this, the entire institution has codified accounts consistently being used across all campus centers. This should help NTU better manage its grant portfolio across all departments.
- Implemented Month-End Closing Guide and Calendar to ensure all financial transactions are posted within ten days after month-end. This has improved all-cash reconciliations and is tied to monthly grant draws for cash requirements improvements. This has also eliminated many of the cash flow challenges NTU has faced in the past. Currently, all draw downs of federal funds are current, which also helps with the relationship to federal agencies.
- Improved customer service by answering student and staff questions within a specific time frame. For example, in the financial analysis ordered by President Guy before the current Chief Financial Officer's appointment, one of the significant items found is that most inquiries to the financial management office were not ever answered. This initiative is helping to resolve many of the dilemmas project managers, project directors, faculty, department chairs, and administrators faced without requiring hours waiting to see the CFO.
- Implemented 3rd party payroll system (PCS) to improve time entry and payroll processing. In addition, monthly payroll uploads are automated to avoid redundancy.
- Increased FTE in the Business Office. Redesigned Organizational Chart to include additional staffing.

Preparation for a Higher Learning Commission (HLC) Accreditation Site Visit

SETTING EXPECTATIONS

One of the strengths of NTU has been its ability to earn accreditation from the HLC and specialized accreditation agencies like ABET, which accredits programs in engineering, engineering technology, computing, and applied and natural science, and the AVMA Committee on Veterinary Technician Education and Activities. Preparing for HLC visits that are periodically required is an all-university effort. Since an HLC visit is required as part of the continuing accreditation process for 2022, faculty and administration have been working to prepare the campus and instructional sites to ensure that all accreditation criteria are fully met by all university departments and instructional sites.



NTU STUDENT UNION BLDG
Crownpoint, NM



SKYHAWK HIGHLIGHT

NTU Baking faculty members **Sheila Begay** and **Walter Cloud** are competed in the NM Museum of Natural History Foundation's annual Chocolate Fantasy competition. The event was held virtually this year and was to the theme of "STEAMPunk," which is a retrofuturistic sub genre of science fiction that incorporates technology and aesthetic designs inspired by 19th-century industrial steam-powered machinery.

Expansion of the Curriculum

In addition to achieving accreditation for online programs, several new programs were accredited and added to the NTU catalog during 2021.

These include:

- **Mechanical Engineering (B.S.):** Mechanical engineers design, develop, build, and test mechanical and thermal sensors and devices. Employment in the field is currently growing at better than 7% per year nationally.
- **Environmental Engineering (B.S.):** Environmental engineers use the principles of engineering, soil science, biology, and chemistry to develop solutions to environmental problems. This is needed for the Navajo Nation because of the Abandoned Uranium Mine cleanup efforts. This field's growth is only 4% per year.
- **Heavy Equipment Operator:** Heavy equipment operators drive, maneuver, or control the heavy machinery used to construct roads, buildings, and other structures. The growth rate has been at about 5% during the past decade, but is expected to increase due to stimulus funding that has been authorized. This program has been launched at the Chinle instructional site as part of the effort to reverse the downward enrollment trend.

Work has also been done on reviving the Registered Nursing program. The New Mexico Board of Nursing has voted to approve NTU's program. Other efforts to establish baccalaureate degrees in Chemistry (in support of pre-med programming), Accounting, and Computer Science have all made significant progress during the year.



SKYHAWK HIGHLIGHT

This past spring 2021 graduation, Tia Grey earned her B.A.S. degree in Information Technology. During her time at NTU, Tia was active in research and STEM promotion through NASA. Her work began with the NTU-NASA Robotics grant project, which led to her first NASA internship in summer 2020 at the NASA Armstrong Flight Research Center. This spring she also worked with NASA Kennedy Space Center.

Congrats, Tia! Last summer she interned at NASA Langley Research Center. Her projects at each center are detailed below:

- Summer 2020 NASA AFRC - Magnetic Two-Body Separation System Development project.
- Spring 2021 NASA KSC - Mechanical Engineering for Excavation Robot Design and Fabrication project.
- Summer 2021 NASA LRC - Common Wind Platform Development - Software, Automation, and Autonomy project.

Academic Administration Accomplishments

OUR SUCCESS

NTU LIBRARY
Crownpoint, NM

A list of the success on campuses are as follows:

1. Creation of learning & working spaces for students & faculty

Trades students built outdoor learning classrooms/gazebos to address limitations of indoor classroom sizes during the pandemic, but more importantly to maximize ventilation to combat virus transmission. The university purchased modular buildings to be utilized for faculty office spaces. The modular buildings that have classrooms will be utilized for growing programs and to address social distancing concerns.

2. Focus on Chinle Branch campus vision

Job descriptions have been created to help the Chinle campus become a fully-functioning branch campus. The infrastructure includes additional modular buildings for faculty and administration offices. The old campus will be vacated to provide all Chinle NTU services on the new campus site.

3. Increasing response to community requests

Multiple departments have initiated special programs requested by the Navajo Nation and its agencies. These include the revival of the a) Police Academy with the Navajo Nation Department of Public Safety; b) Crestlex workshops for high school STEM teachers and students; c) Voter Registration/Terminology certificate program for the Navajo Human Rights Commission & Navajo Utah Navajo Project; d) TCU Partnership with Navajo & Zuni Head Start employees for ECME associate & bachelor's degree programs; e) Workshop series for Navajo/Dine Studies cultural knowledge.

SKYHAWK HIGHLIGHT

NTU would like to recognize **Anmarie Greysinger** of Tsaille, AZ for earning her certificate in Administrative Office Specialist. Anmarie started at our Chinle instructional site before earning her certificate at main campus.

Congratulations on your tremendous achievement, Anmarie!



4. Weekly Co-Governance Team meetings

The faculty congress and administrative leadership meet weekly to discuss current concerns, challenges, and celebrations. This work is difficult, but the meetings provide the forum to communicate in a respectful, thoughtful, and productive manner. Some topics have included: the Faculty Handbook, Safety & Security, Employee Benefits, and Housing.

5. Department Accomplishments

All departments have worked to create guidance manuals and cross-training guides.

6. Data-Driven Decision-making

The university has begun a conscious effort to utilize the data collected in problem solving and understanding issues. This is challenging but necessary to create solutions. Examples include taking the time to create Advising Trees, maximizing the Jenzabar programs that are designed to help us in our work, securing outside companies to help fill in the gaps within our systems, sharing the workload, and more.

7. Student Focused

The university has expanded the different programs for students to include:

- A. SkyHawk for Success intervention schedule, going from two to multiple times throughout the semester to assist struggling students;
- B. Addition of USA Cycling Team to expand student athletic opportunities for students;
- C. Sammie's Snack Shop to provide free afternoon snacks to students as they study throughout the semester;
- D. Site Recruitment activities that also include financial aid night workshops for students and parents;
- E. Newsletters from departments to share the work with the NTU community;
- F. Campus improvements, such as a sign at the front gate, landscape crew for weed control, purchase of gas grill and outdoor lawn furniture for dorms, moving the outdoor wooden gazebo to a new location close to family housing, moving the storage building to the residential parking lot to be used as a community pantry and "dress-for-success" location (suits, dresses, ties, etc. so students can go on interviews), Study Nights to prepare for mid-terms and finals with added tutorial support from volunteer staff, faculty and senior students to help students with faculty support; and much more.

59 ACADEMIC PROGRAMS

Progress Toward Becoming a Research University



NTU STUDENT - FAB LAB
Crownpoint, NM

When NTU became an established university, one of many goals was to become a research university. The effort to become a research university is often measured by the quantity and quality of research papers completed by students and faculty in peer-reviewed research journals or in the publication of books. NTU is making significant progress in this regard.



NTU STUDENT - FAB LAB
Crownpoint, NM

Faculty and student Publications 2021

Abboud, Jaafar H, Fakron, Osama, Benyounis, Khaled Y, and Hashmi, Saleem (2021)

Material Response with High Power Laser in Surface Treatment of Ferrous Alloys. *Elsevier Inc.*

Bunn Chelsea (2021)

Her poem was accepted for publication in *Bellevue Literary Review*.

Bunn, Chelsea (2021)

Her work was selected for inclusion in *Mental Health Anthology* from Quillkeepers Press.

Dekelaita-Mullet, D. R. (2021)

Catalysts of women's success in academic STEM: A feminist poststructural analysis. *Journal of International Women's Studies*, 22, 83-103.

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Software Implementation of the Enigma Machine in Python. *International Journal of Electrical and Computer System Design*.

Fayed, A.A., Illafe, M., Makhzoum, H.A., and Elmansouri, R.A. (2021)

The Existence and Uniqueness of Periodic Solutions for Nonlinear Neutral dynamic equation with infinite delay on a Time Scale. *International Journal of Scientific and Research Publications IJSRP* Volume 11, Issue 10.

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Ganesan, S., Elanchezian, M., Ramakrishan, S.G., Sivam, S., Senthilkumar, S., Soundappan, T., Ponnusamy, and V. (2021). Novel delipidated chicken feather waste-derived carbon-based molybdenum oxide nanocomposite as efficient electrocatalyst for rapid detection of hydroquinone and catechol in environmental waters, *Environmental Pollution*, Volume 293, 2021, 118556.

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Ketadzo, J. A, Nkongolo, N.V., and Akrofi, M. M. (2021). Empirical analysis of the impact of urbanization on groundwater quality within the slums of Accra, Ghana. *World Water Policy*. (7):112–131. <http://dx.doi.org/10.1002/wwp2.12054>.

Kumar, M. S., Javidrad, H. R., Shanmugam, R., Ramoni, M., Adedirani, A. A., Pruncu, C. I. (2021). Impact of Print Orientation on Morphological and Mechanical Properties of L-PBF Based AlSi7Mg Parts for Aerospace Applications. *Silicon*, 1-15.

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Malshe, Ajay, Agonaferm, Dereje, Bapat, Salil, Cao, Jian, Ramoni, Monsuru, et al. (2021). Ajay M. Dereje, A., Salil B, A case for Frugal Engineering and related manufacturing for Social Equity. *The Bridge*.

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Niba, P.T. N, Nji, A.M., Evehe, M.S., Ali, I.M, Netongo, P.M., Ngwafor, R., and Moyeh, M.N. (2021). Drug resistance markers within an evolving efficacy of anti-malarial drugs in Cameroon: a systematic review and meta-analysis (1998–2020). *Malaria journal* 20 (1), 1-20.

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Yavari, R. Riensche, A., Tekerek, E., Jacquemetton, L., Halliday, H., Vandever, M., Tenequer, A., Perumal, V., Kotsos, A., Smoqi, Z., Cole, K., Rao, P. (2021) Digitally Twinned Additive Manufacturing: Detecting Flaws in Laser Powder Bed Fusion by Combining Thermal Simulations with In-situ Meltpool Sensor Data. *Elsevier Ltd*.

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NTU STUDENT - FAB LAB
Crownpoint, NM

Our students earn hands-on experiences with cutting edge technology for professional integration by qualified faculty. NTU students do not simply learn, they design, create and empower through our state of the art mentorship, internships and projects. Students are encouraged to teach each other and learn from one another in a way that enhances our curriculum.

Elements of NTU's Economic Development Strategy



An abstract of the university's strategy is as follows:

1. The further creation and development of additional undergraduate and graduate degree programs needs to be identified by either the Navajo Nation's President, its legislature, or the economic development plans of the Division of Economic Development.
 - A. Vocational/Technical programs aimed at job readiness for students.
 - B. Longer-term baccalaureate and graduate programs aimed both at workforce development and high wage/high skill jobs, especially in STEM, education, health, business, and management fields.
2. Development of world-class technology infrastructure to serve the university and the Navajo Nation.
3. Development of a research/academic component to the university designed to achieve partnerships with private industry and further the creation of intellectual property that can be used for economic development for the Navajo Nation.
4. Development of an experiential component, led by faculty, through both degree programs and research efforts that can result in high skill/high wage careers for students and an entrepreneurial culture on the Navajo Nation that results in the creation of new industries and businesses.
5. Creation of an intellectual-properties infrastructure based upon models in California, Wisconsin, New York, South Carolina, Massachusetts, and elsewhere that have resulted in major economic phenomena like Silicon Valley and the North Carolina Triangle.
6. Development of business incubators with an educational and capital creation component that can help both students and Navajo entrepreneurs succeed in establishing new businesses/industries.
7. Establishment of an L.L.C. owned by NTU that can help with the transfer of intellectual property and other university efforts in economic development into the private marketplace.
8. Leverage developments like those the university has achieved in the areas of advanced manufacturing into income-generating activities that provide high skill/high wage jobs for NTU students.

Each of these elements was worked on in 2021, including the effort to establish an NTU L.L.C., which has now been accomplished. Some elements, such as number 5, above are further from realization than other elements. We are awaiting budget details to begin hiring staff at NTU LLC.

Financial Report

FY 2021 Financial Highlight

The net operating budget decreased by 1 % from 2020 to 2021 due to a decrease in expenditures in Student Services, Academic Support, and Auxiliary Services. Operating revenue decreased year over year due to a decrease in enrollment, which affects tuition, federal student aid, and auxiliary enterprises. The non-operating activities revenue increased by 162 percent due to an increase in federal appropriations of COVID-19 and American Rescue funding and gift donation of \$12 million which resulted in a change in the net assets of a positive \$53.3 million for 2021.

	AUDITED - 05/31	UNAUDITED - 05/31	% CHANGE
REVENUES			
	2020	2021	
Tuition and Fees, Net	1,023,626	887,564	-13%
Auxiliary Enterprises	1,144,242	1,137,165	-1%
Total Revenue	2,167,868	2,024,729	-7%
EXPENSES			
Instructional	7,589,654	8,296,495	9%
Student Services	2,511,926	1,861,204	-26%
Academic Support	1,586,398	1,412,112	-11%
Public Services	831,031	937,131	13%
Student Assistance	671,332	729,469	9%
Institutional	9,613,163	8,949,154	-7%
Auxiliary Services	4,134,655	2,576,226	-38%
Depreciation	2,713,870	4,380,777	61%
Total Expenses	29,652,029	29,142,567	-2%
Net Operating Results	(27,484,161)	(27,117,838)	-1%
NON-OPERATING ACTIVITIES REVENUE			
Federal Grants and Contracts	25,375,242	52,262,829	106%
Government Appropriations	4,303,022	12,684,254	195%
State and Tribal Grants and Contracts	527,497	1,151,051	118%
Private Grants and Contracts	435,173	13,698,460	3048%
Other Revenue	44,119	691,549	1467%
Interest Income	371	325	-12%
Total Non-Operating Activities	30,685,424	80,488,469	162%
CHANGE IN NET ASSETS	3,201,263	53,370,631	1567%

4-YEAR DEGREES
DEVELOPED SINCE 2011



STRATEGIC PLAN

//////////////////// 2020-2025

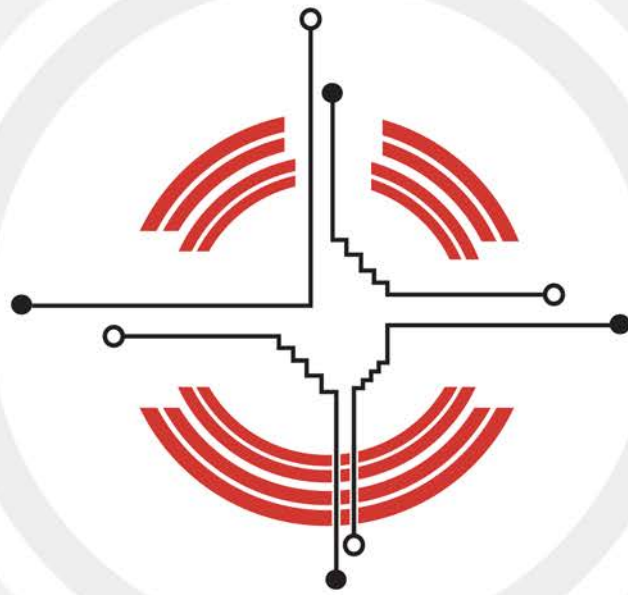
The Board of Regents approved a new strategic plan that will be implemented at all NTU locations for the next five years. The plan’s priorities were established based on information collected from were established from information collected at listening sessions held by the CIE over two years at each of NTU’s five locations. The plan is aimed at strengthening the culture and integrity of NTU; increasing the diversity of Navajo communities; and improving the university with a variety of innovative programs.

THE STRATEGIC PLAN INCLUDES SIX PRIORITIES:

- Academic Excellence
- Financial Services
- Communication and Institutional Research
- Infrastructure
- Development of Instructional Sites
- Sustainability







Navajo Technical University honors Diné culture and language, while educating for the future.

2021