

BIENNIAL REVIEW

2021-2023



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Front cover - Dickinson State University student and natural science faculty examine a brain model during class. Innovations in curricula and accessibility will be the primary focus in the coming years, as well as reducing the cost of attendance for students by freezing or keeping tuition affordable, expanding the use of free and open educational resources, and providing early access to low-cost college courses for high school students. As a critical component of DSU’s dual mission charge, the University is expanding programming in short-term training and workforce preparation to address workforce shortages across the board in our region, including critical need areas such as skilled labor, nursing, automation/controls, and teacher education. In meeting the educational needs of the future, DSU strives to remove time and distance as barriers to learning.

Above - Students in the North Dakota State College of Science diesel tech program work closely with their instructor during class. The program boasts a 100-percent job placement rate, a state-of-the-art lab, and options for students to study specific manufacturers such as General Diesel, Case IH, Komatsu, Caterpillar and John Deere.

Back cover - At Dakota College at Bottineau, there’s a long history of ag programs that aid future farmers and ranchers in not only the traditional methods, but emerging ag fields such as horticulture and precision ag. Pictured above, a student works at maintaining a tractor in the Agriculture Production and Management program, created in 2019.

STATE BOARD OF HIGHER EDUCATION

The State Board of Higher Education is the policy-setting and advocacy body for the NDUS and the governing body for its 11 colleges and universities. It also oversees the NDSU Extension Service and Agricultural Research Stations, Northern Crops Institute, State Forest Service and the Upper Great Plains Transportation Institute. The SBHE is made up of seven citizen members appointed to four-year terms by the governor and one student appointed by the governor to serve a one-year term. The Council of College Faculties selects the board's non-voting faculty advisor, and the NDUS Staff Senate selects the board's non-voting staff advisor.



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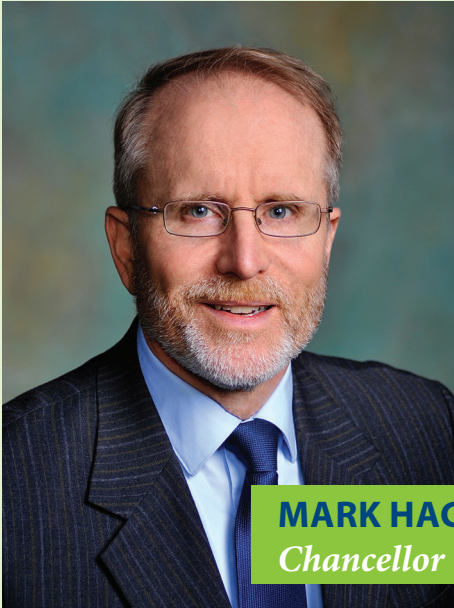
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Michael Linnell
Staff Advisor



Dr. Lisa Montplaisir
Faculty Advisor



MARK HAGEROTT
Chancellor

I'd like to start by thanking our partners in state and local government, the legislature, and industry, for supporting the North Dakota University System (NDUS) during these times of unprecedented change. From the initial COVID response that sought to keep our students, faculty, and staff safe and engaged, to responsive moves to adopt polytechnic and dual mission models at two of our institutions, and to all the innovations we've made through workforce training, internships and apprenticeships, the North Dakota University System (NDUS) and the State Board of Higher Education (SBHE) could not have done it without the support of our many great partners.

Our state's unified system continues to respond to the needs of the state. Governor Doug Burgum identified a skilled workforce as one of three pillars of his Mainstreet Initiative. In response to this statewide emphasis, the SBHE added workforce development to its strategic plan. The other five goals of the strategic plan include: Optimizing student affordability while maintaining campus financial health;

providing access to programs people want, where and when they need them; preparing students for success; maximizing the strengths of a unified system; and research excellence and innovation. Collectively, they serve as the core of the work that the NDUS and SBHE have strategically undertaken to ensure our mission and vision create as much value, opportunity, and stability for our state, and the students we serve.

Throughout this publication, those efforts across each goal will be documented. I would like to focus on the most recent addition to our goals now by detailing some of the efforts we've already undertaken to help North Dakota create a stronger and more vibrant workforce of informed citizens.

WORKFORCE

Our 11 public colleges and universities have a long tradition of successfully working with regional business and industry to shape our academic programs to enable our students to graduate and hit the ground running in their sector of choice. In the past two years our institutions have managed to find more ways to build responsive programming.

But our mission is to do more than just recruit and train. Our mission at times requires us to be anticipatory in seeing the shifting needs of the workforce. At times it requires us to identify the growing sectors of the future and put in place programs that will ultimately help diversify our economy.

That can't start without stability of programs. Fortunately, long-term programs in agriculture, education, energy, health care, manufacturing, technology and even law enforcement training have provided that stable background from which true innovative work can begin. Having graduates enter those sectors and industries helps create stable

communities that seek to help individuals and their communities thrive, and from those stable communities more nimble transformation can occur.

This has been seen in North Dakota's ability to take on the high-level work of unmanned systems, whether those systems are aerial or ground based. It also enables research to move forward in topics like high performance computing, cybersecurity, and the data sciences.

We know that the government and businesses throughout the country understand the digital needs of the nation. I helped lead the roundtable on cyber education at the White House during its Cyber Workforce and Education Summit in July, bringing together leaders to discuss the growing need for 700,000 cyber workforce vacancies to be filled as they constitute a national security risk when unfilled. Additionally, CEOs for Computer Science initiative was announced earlier in the year, when hundreds of executives from the public and private sectors pledging to address cyber skill needs in K-12 to better prepare students for the technical skills of the present and future.

INNOVATION

Public/Private partnerships like the one between Bismarck State College and Palo Alto Networks are also essential to meet such needs. Collaborative efforts between University of North Dakota and Grand Sky, and North Dakota State University and Grand Farm, are also vital to ensuring North Dakota's relevance in these growth markets. Having industry support means everything to our programs, especially concerning emerging fields like cybersecurity.

Other innovative efforts include hundreds of certificate programs that have been stood up by our campuses in the past two years. As the workforce restructures, many workers might find themselves seeking new skills for new roles, but without a need for a full two- or four-year program.

Having smaller stackable certificate programs available for all students only increases our capacity to create opportunities for student success.

Finally, recent recommendations from the SBHE have included creating new opportunities for transformation, including placing emphasis on a dynamic enrollment environment that also offers support for behavioral health needs of the system, updating educational pathways to provide seed money to campuses for development of new programs, addressing challenges in talent recruitment and retention head-on to strengthen our state's workforce, and anticipating and responding appropriately to technical transformation and digitization of society.

CHALLENGES

The NDUS and 11 campuses have proven to be resilient and adjustive in the face of historic challenges.

We have sustained a viable and robust student population, with our state moving in a better direction than national trends. According to the National Student Clearinghouse, national enrollment has declined by 6.7 percent since fall 2019. Meanwhile, fall 2022 census numbers indicate that North Dakota declined by just 3.1 percent in that same period. While national numbers also declined from the 2020-21 academic year, North Dakota showed an increase of 0.4 percent for that same period.

That reversal shows NDUS grown compared to decline and showcases the confidence students and parents have in the state's public higher education system. However, as neighboring states offer more incentives to grow

Public/Private partnerships like the one between Bismarck State College and Palo Alto Networks are also essential to meet such needs. Collaborative efforts between University of North Dakota and Grand Sky, and North Dakota State University and Grand Farm, are also vital to ensuring North Dakota's relevance in these growth markets. Having industry support means everything to our programs.

workforce and increase salary and funding of their university systems, NDUS could face outmigration of faculty, staff, and students. Thankfully, our legislators created Career Builders and Loan Repayment program, which serves our state well against the threat of potential enrollment loss.

However, workforce challenges remain. Historic levels of inflation have placed a heavy strain on household income, and the passage of a needs-based budget would go far to help strengthen our workforce and protect it against potential outmigration. Similarly, further investment in enhanced student mental health services, veteran's outreach, financial aid, cybersecurity, and workforce education would help stabilize and strengthen both our system and our economy.

To the latter, the SBHE has proposed a Workforce Education Innovation Grant Program to aid our community colleges, regional universities, and research institutions by making funding available for campuses to create innovative, high demand programs that are responsive to North Dakota's ever-changing workforce needs. Such a program would aid in the development of curriculum and the purchase of equipment that will train new instructors in emerging fields to ensure that our state remains regionally competitive into the foreseeable future.

The NDUS has remained innovative, responsive, and transformative in the face of emerging challenges. It's with the partnership, support and collaboration of our campuses, private partners, legislators, and state government that our continued vitality remains ensured.

OBJECTIVE 1

Build student awareness of workforce opportunities and flexible career pathways

The State Board of Higher Education in 2021 added another goal to its strategic plan, focused squarely on Workforce Development. While preparation for a student's future career through academic programming has long been the purview of the North Dakota University System, board members, presidents and educators alike determined a new goal would be necessary to track metrics that indicate progress forward of topics like student awareness of opportunities, work-based learning, and credit for prior learning.

The university system has over time developed numerous partnerships with business and industry that have simultaneously provided responsive programming directly related to the work students will find upon graduation, as well as high job placement rates. At North Dakota State College of Science alone, the job placement rate upon graduation has pushed 100-percent for many years.

The collaboration between our academic programs, and the business or industry they relate to, is common practice at our 11 public colleges and universities, with positive impacts being felt even outside the university system.

Thanks to the passage and signing of Senate Bill 2345 on November 15, 2021, Bismarck State College was granted \$38 million to advance its polytechnic mission and in fall 2022 broke ground. This construction will further supplement the capital projects that have helped expand career and technical education in our state.

Our work with business and industry moved forward thanks to Lake Region State College's proud tradition of working with business and industry to create paths toward internships and apprenticeships – an initiative that was recently expanded to the state's five tribal colleges.

These great examples of workforce development have been ushering students to success in their newfound careers. Additionally, our faculty, whether full-time or adjunct, bring a wealth of real-world knowledge into their classrooms to ensure that students will hit the ground running when they graduate.

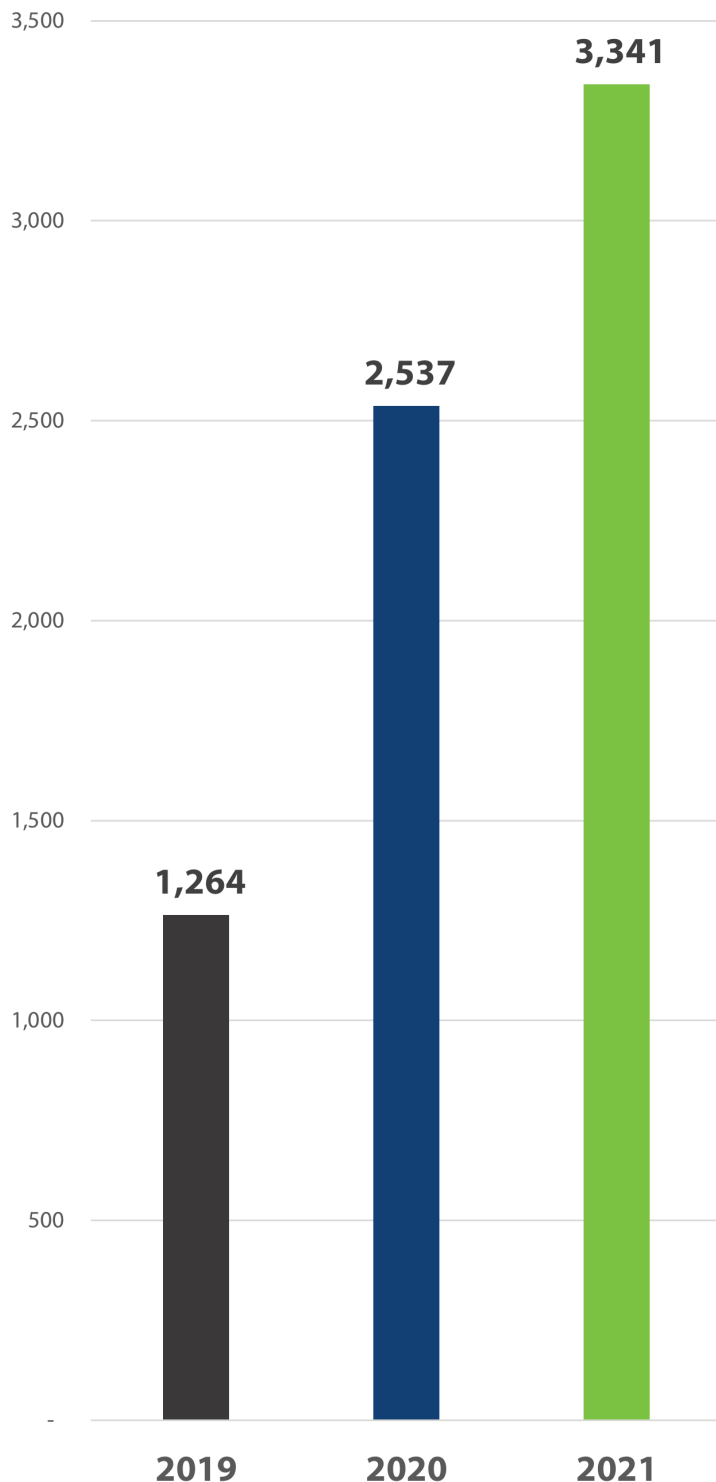
OBJECTIVE 2

Incorporate work-based learning into curricula

OBJECTIVE 3

Develop common practices or shared resources for granting credit for prior learning

Degrees Awarded in High Demand Workforce Jobs



North Dakota's teacher shortage has emerged as one of the state's most pressing and urgent concerns. In response, the University of North Dakota's College of Education & Human Development has organized and launched the Office for Teacher Recruitment and Retention (OTRR). Their mission is to support current educators and inspire future teachers. Per OTRR's Mission Statement, the office strives to "increase diversity and total numbers of students enrolling in teacher preparation programs ... to [put] time and energy into preparing more new teachers for our community ... [and] to improve early career support, promote growth opportunities, collaborate with all education stakeholders, and work to keep highly qualified teachers in our schools." Read more about this new venture at education.UND.edu/about/otrr.



OBJECTIVE 1

Ensure the price to attend NDUS institutions is clearly stated and regionally competitive

OBJECTIVE 2

Operate institutions that are resilient and financially viable

OPTIMIZE STUDENT AFFORDABILITY

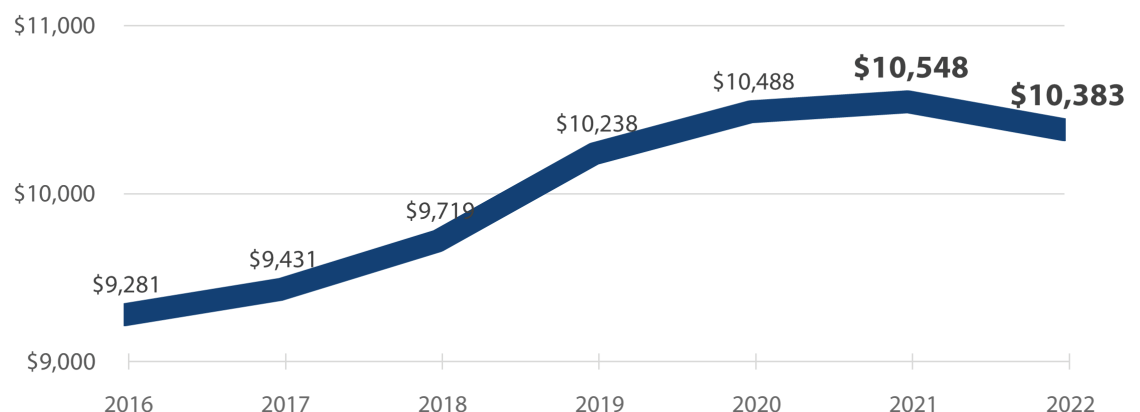
Among updates to its strategic plan, the North Dakota University System and State Board of Higher Education recommended to identify efficiencies and know their role as responsible stewards of public funding, and to continue to offer degrees that were the best value in the nation, while also maintaining financially healthy campuses.

The cost of obtaining an education in North Dakota has remained competitive when compared to regional and national rates. Tuition and fee averages for doctoral universities in NDUS is \$10,499, compared to the regional average of \$10,211 per year. Our master's degree is \$8,163, below the regional average of \$8,455. An average bachelor's degree here is \$8,312, compared to the regional rate of \$8,182. NDUS community colleges' tuition and fees are \$5,418, compared to the regional average of \$4,483.

Other affordability strategies add improved efficiencies continue forward. Open Educational

Average Tuition and Fees

4-YR RESIDENT UNDERGRADS



WHILE MAINTAINING CAMPUS FINANCIAL HEALTH

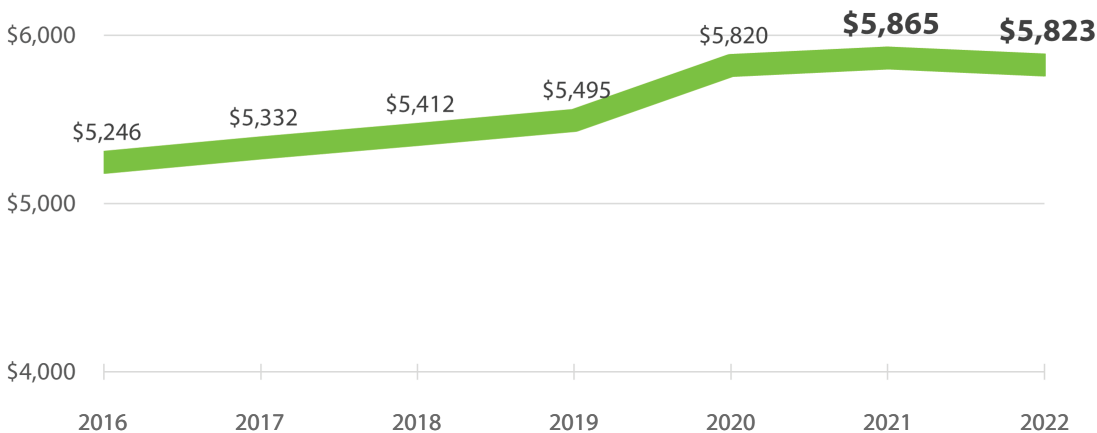
Resources had by last biennium saved students millions of dollars in textbook costs. Through funding made available through the Dakota Digital Academy initiative, educators were able to build collaborative digital programs to be made available systemwide and were also able to take digital bootcamps provided through Career and Technical Education that kept their own digital skills at the forefront of these emerging fields.

Additionally, as touched upon in the section where we detail maximizing the strengths of a unified system, numerous standardization projects in the past several years have helped lower campus costs improve efficiency while delivering high quality, responsive services.



David Linn and Micah Anderson take a break from coursework in the Williston State College Welding Program

Academic Years 2016-2023



**2-YR RESIDENT
UNDERGRADS**

OBJECTIVE 1

Ensure programs are relevant, valuable and timely

PROVIDE ACCESS TO PROGRAMS PEOPLE WANT, WHERE AND WHEN THEY NEED THEM

The State Board of Higher Education remains committed to offering programs that people want, for whatever their academic or future workforce needs may be. The system prioritizes this goal at every board meeting, where certificates to entire degree programs can be added, modified, or discontinued to meet the changing needs of the workforce.

OBJECTIVE 2

Meet ND's workforce needs through recruitment of students from traditional and non-traditional audiences

TechND's State of Technology 2023 report indicates more than 7,000 North Dakotas are employed in occupations revolving around technology. Current estimates indicate that there will be another 6,300 positions that need to be filled within the next decade. Thanks to the work of the university system in the past several years, North Dakota is well-positioned to meet those needs through our efforts in our communities.

Minot State University this past year joined Bismarck State College and North Dakota State University in receiving official certification by the National Security Agency for the rigor of its digital programming. That certification is a mark of high distinction for a university and provides national recognition to those programs.

OBJECTIVE 3

Expand access through non-traditional delivery methods

The 2022 fall enrollment report indicates that 53 percent of NDUS undergraduates listed their home state as North Dakota, 28 percent listed Minnesota, Montana and South Dakota, and the remaining students were from other states and international locations. Research shows students who are educated in our state are more likely to seek employment here, and businesses are aggressively recruiting our students.

In the past fifteen years, high schoolers enrolled in college courses has increased by nearly 250% (74% in the past decade) because of dual credit offerings. That's in no small part to the House

Bill 1375 from the last legislative session, which increased funding for dual credit students. Dual credit students have a higher tendency to stay in the state upon graduating from high school because they've already established a connection with their college or university of choice, reducing time to degree, which is good for enrollment strategies.

Our institutions have a history of working closely with partners in business and communities to provide a curriculum to our students that provides needed theoretical knowledge as it does in providing practical skills. Relationships have been fostered over time between our institutions and companies throughout the state that continues to enable student success. When they graduate, our students find themselves with opportunity to succeed wherever they may go, and with an education that directly translates to new careers.

Working collaboratively with business, industry, and other campuses enables our institutions to seamlessly meet students' needs as a team, while at the very same time fulfilling their own unique missions.

One example exists at BSC, which has already added two new Bachelor of Applied Science programs in energy and cybersecurity, with more plans for continued expansion. New master's degree offerings have begun throughout the system, and nearly 1,100 certificates are offered systemwide.

Post-pandemic, students' expectations regarding program delivery have changed as well. In the past several years, enrollment in online and video-delivered courses has increased steadily, by nearly 10 percent, pre-pandemic. With more collaborative efforts on the horizon that number is sure to grow and allow more people to access our academic programs wherever they may be.

At Lake Region State College, students in the automotive technology program talk with their instructor during class. As one of five community colleges in the state, LRSC has long offered sought-after, hands-on learning that familiarizes students with the tools they'll be using immediately upon graduation.



Mayville State University students have the unique opportunity to participate in important research projects, including work related to the mosquito population in the local area.

OBJECTIVE 1

Increase students' overall success through increased retention and graduation completion rates

OBJECTIVE 2

Remove barriers to registering and advising transfer students

OBJECTIVE 3

Encourage use of student support services

PREPARE STUDENTS FOR SUCCESS

Preparing students for future success is the cornerstone goal of education at all levels, especially college. The State Board of Higher Education recognizes this and added to its strategic outlook the implementation of a dynamic enrollment environment and expanded educational pathways.

The former places additional emphasis on student engagement and re-engagement, more support is sought for the behavioral health needs of the system, and enrollment reporting is updated to include the collection of achievement data by gender, race, age, financial aid status, and the inclusion of self-reported service-connected information.

The latter encourages campuses to provide more course delivery options, program additions, and changes. Legislative support in past biennia has prompted innovations such as Career Builders Loan Repayment Program and Open Educational Resources.

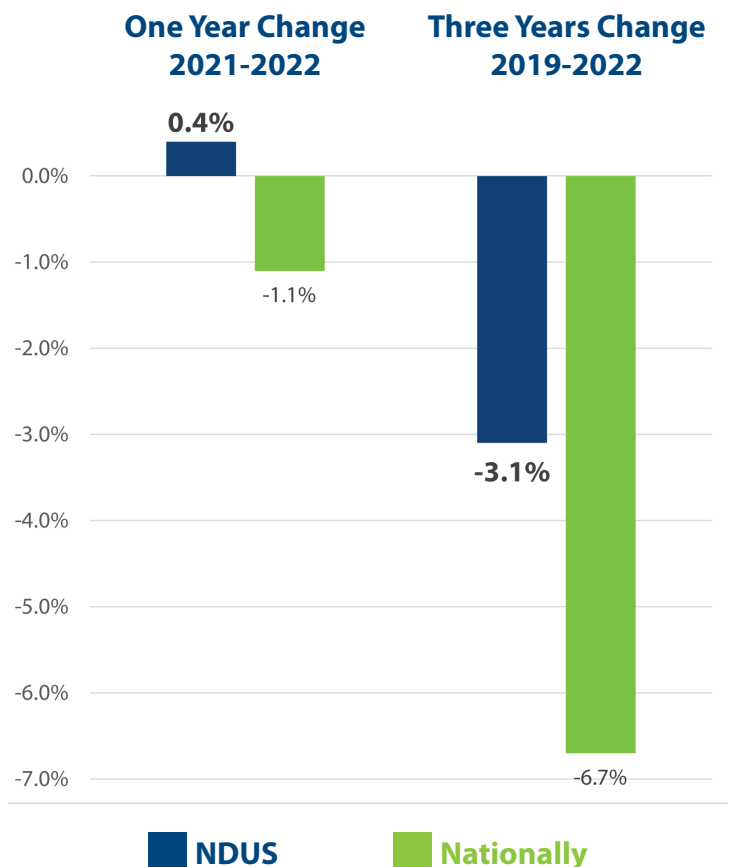
Further support is needed for an Innovation Fund for campuses to access funding for the development of new programs, and the expansion of successful pathway initiatives such as the Dakota Digital Academy, ECOR and OER, Math Pathways, and Stackable Credentials.

The expansion of the dual credit system has also encouraged more North Dakota high school students than ever to start earning college credit early. Past studies have indicated that dual credit not only helps high school students adjust to college-level work faster, but it can also save them time – and money – once they enroll full-time after high school.

Dickinson State University (DSU) is committed to offering programming under its dual mission initiative, including liberal arts and career and technical education options. DSU welcomes students to campus, in addition to meeting students where they are, with the use of advanced distance education technologies. This student-centered focus allows the institution to provide quality and affordable education to traditional and non-traditional learners. DSU continues to offer relevant programming to meet the demands of the region, including emerging program options in welding technology, diesel technology, fire science technology, criminal justice/ law enforcement, and sport administration/athletic leadership. Graduate programs in educational leadership and sports marketing are in the planning stages. DSU continues to expand higher education partnerships with articulation agreements (2+2 and 4+1), including eight colleges and universities in North Dakota and Montana.



Enrollment Trends: NDUS Compared to Nation



These metrics have been essential in setting the stage for continued high rates of student success, and it shows. Official census counts from Fall 2022 show that there are a record number of high school students enrolled – 638 more than last year at the same time.

Finally, expanded internship and apprenticeship opportunities throughout the university system are already ensuring that once students graduate from an NDUS institution, they're well positioned to be successful in their chosen field.

OBJECTIVE 1

Create/expand administrative efficiencies through consolidated or shared services

OBJECTIVE 2

Strengthen the system's ability to respond quickly to changing needs

OBJECTIVE 3

Create/expand academic efficiencies through consolidation or shared services

MAXIMIZE THE STRENGTHS OF THE UNIFIED SYSTEM

The State Board of Higher Education has consistently aimed to implement systemwide efficiency whenever possible, and the goal of maximizing the strengths of a unified system aims at this mission.

Initially, this goal included five approaches: Strengthen academic collaboration among the institutions; create efficiencies through shared programs and services where cost-savings and/or performance enhancements are achievable; strengthen the system's ability to respond quickly to changing needs; enhance the research reputation of the research institutions; and encourage Open Educational Resources.

Core Technology Services, the information technology-based organization within NDUS, performed exceptionally to this end. Numerous standardization projects related to email, Help Desk tracking, and network security operations have moved forward, creating a more stable, secure, and efficient digital space for faculty, staff, and students to work within.

The Chancellor's Cabinet Electronic Curriculum Open Resources (ECOR) study group was established last year and work in this area will continue to build campus support and identify the most needed courses.

The North Dakota University System has expanded its certificate programs and now offers nearly 1,100 systemwide.

The Dakota Digital Academy continues NDUS' high capacity to connect students with programs they want, where and when they want them. Grants awarded through the DDA have supported educators through specific digital courses to give them the ability to successfully instruct on that content.



Numerous courses have been identified throughout the university system that allow students from any campus to take a course offered through the DDA.

The DDA has spurred the development of more than 50 new cyber-related courses in the past 18 months. One such recent certificate accomplishment ties into emerging fields. At Dakota College at Bottineau, grant funding created an introductory course in information security and a second course on cybersecurity, the latter which utilizes open educational resources for its text to save students money.

The class is part of a larger cybersecurity certificate, which itself is offered as a joint effort between DCB and Turtle Mountain Community College. Additionally, the courses will be offered to all institutions within the Northern Information Technology Consortium: DCB, TMCC, Minot State University, Lake Region State College, and Williston State College.

Learning experiences at a polytechnic institution are purposeful, practical and driven by workforce needs. A polytechnic education gives students hands-on, applied learning opportunities through real-world experiences with labs, internships and cooperative community projects. BSC works closely with industry leaders to bridge the gaps in industry needs and ensure students are prepared the first day on the job, with the skills they need. And as companies continue to advance, BSC ensures graduates are prepared and ready to install, maintain, repair, operate and troubleshoot these new technologies

As part of NDUS's red-tape reduction effort, 112 SBHE policies, NDUS procedures, and NDUS human resource policies were reviewed and updated between December 2020 and September 2022. This allows our institutions to be more nimble while still operating within an effective statewide framework.

OBJECTIVE 1

*Establish ability to track
research infrastructure
utilization*

OBJECTIVE 2

*Improve
research efficiencies*

OBJECTIVE 3

*Improve
research reputation
of research universities*

RESEARCH EXCELLENCE AND INNOVATION

Our research universities, North Dakota State University and University of North Dakota, continue to lead the nation in both established and emerging fields. In the past year alone, NDSU was named the lead institution for a \$14 million National Science Foundation grant that established the multi-institutional Great Plains Innovation Corps Hub to provide in-depth, high-level training for scientists to get new ideas commercialized. Additionally, UND has continued to be among the top institutions in the nation to ensure America's spaceflight dominance and is the first university to operate a NASA-funded lab dedicated to those efforts.

As more fields emerge to market, these two institutions lead our system of 11 public colleges and universities, each with their own mission and capacity to conduct research collaboratively so that opportunities can be realized in the state that keep us regionally and nationally competitive, and economically stable.



The UND aerospace program remains a leader nationally, and has contributed significantly to NASA's mission over time.

North Dakota State University was once again designated as an R1 research institution by the Carnegie Classification of Institutions of Higher Education. Carnegie’s R1 distinction, titled “Doctoral University: Very High Research Activity,” is its highest classification and is presented to only the top research institutions in the country. For the 2021 list, 137 institutions were designated with the R1 status with 100 being public universities like NDSU. Only three universities in the six-state upper Midwest region of the country were designated as R1: the University of Minnesota, NDSU and Montana State University.

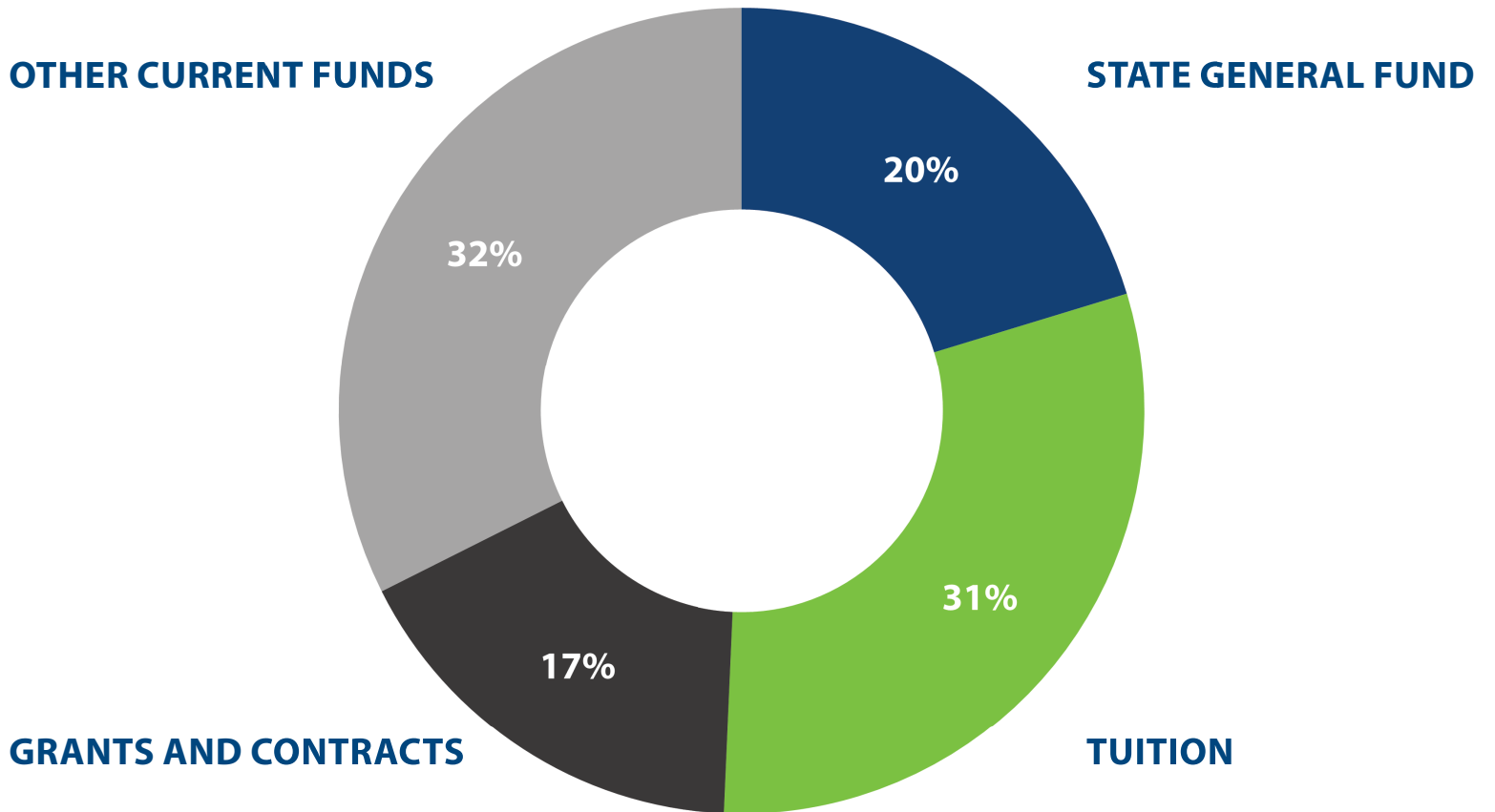


The North Dakota University System, NDSU, and UND are partnering with the Montana University System and 11 colleges and universities from a five-state region to create a regional technology and innovation alliance. The Mountains and Plains University Innovation Alliance will leverage existing research, education, and training programs to boost the collective ability to attract and support the expansion of high-tech innovation and industry in the region. Participating institutions represent the states of North Dakota, South Dakota, Montana, Wyoming, and Utah. The Alliance will also partner with tribal nations, state governments, and industry leadership to develop and enact a regional agenda to ensure the five-state region will play a central role building the technologies of the next century.

Average External Research Dollars per Researcher

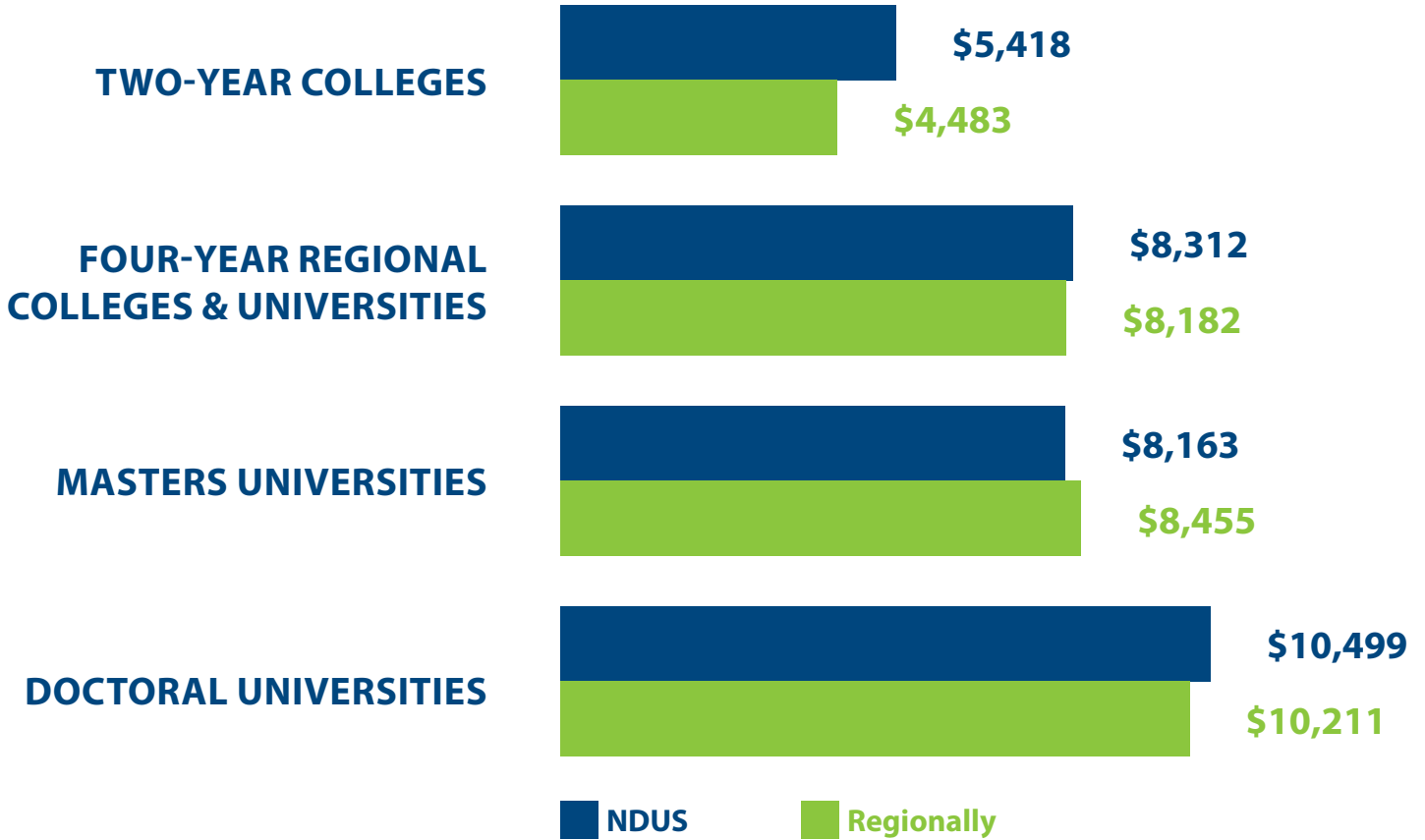


2022-2023 Annual Budget



Jennifer examines the bone structures of a felis catus (domestic cat) in a Minot State University biology class.

Comparison of North Dakota and Regional Averages Resident Undergraduate Tuition and Mandatory Fees



Valley City State University students discuss molecules in the Rhoades Science Center on campus. VCSU has multiple science degrees including Health Sciences, Biology, Chemistry and various science educator programs.



NORTH DAKOTA
UNIVERSITY SYSTEM



www.ndus.edu