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APPLICATION FOR SOUTH DAKOTA STATE BOARD APPROVAL OF A NEW, AMENDED, OR DELETED EDUCATION PROGRAM

INSTITUTION: Northern State University DATE: 12/22/2025

NAME/TITLE OF DEAN/CHAIR OF TEACHER EDUCATION:

Dr. Anna Schwan, Dean of the Millicent Atkins School of Education

I certify that all information contained in this application is complete and accurate.

Signature 

Section I. Action Requested

__X__ New Program Approval

_____ Amendment of Approved Program

_____ Innovative/Experimental Program

_____ Deletion of Approved Program—Stop here and simply attach a letter explaining the request for the deletion.

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Section II. Education Program Certification Level

_____Birth through Grade Three Early Childhood

_____ Birth through Grade Three Early Childhood Special Education

_____ K-8 Elementary Education

__X__5-12 Secondary Education __Science Education (Composite)____(major)

_____K-12 Education_____(major)

_____ Administrative Program (specify)_____

_____ Education Specialist (specify)_____

_____ Certification Only (check major areas)

- ☐ K-12 Art Education
- ☐ K-12 Comprehensive School Health Education
- ☐ K-12 Educational Technology/Computer Education
- ☐ K-12 Health
- ☐ K-12 Music Education
- ☐ K-12 Physical Education
- ☐ K-12 South Dakota Indian Studies Education
- ☐ K-12 World Language Education
- ☐ 5-12 Agriculture Education
- ☐ 5-12 Business Education
- ☐ 5-12 Career and Technical Education
- ☐ 5-12 Family and Consumer Sciences Education
- ☐ 5-12 Industrial Technology
- ☐ 5-12 ELA
- ☐ 5-12 ELA (Mass Comm/Journalism)
- ☐ 5-12 ELA (Drama/Theater)
- ☐ 5-12 ELA (Speech/Debate)
- ☐ 5-12-Mathematics Education
- ☐ 5-12 Mathematics/Science Composite
- ☐ 5-12 Science Education – Disciplines: _____
- ☐ 5-12 Science Composite
- ☐ 5-12 Social Science Education- Disciplines _____

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Section III. Program Justification & Objectives

Attach a narrative that:

- Explains the justifications for this new or amended program, and
- Includes the objectives of this new or amended program.

The proposed Bachelor of Science in Education (BSEd) in Science Education is designed as a composite science degree that prepares teacher candidates to teach multiple science disciplines at the secondary (5–12) level. This program responds directly to the instructional realities of South Dakota secondary schools, particularly small, rural, and high-need districts, where science teachers are routinely expected to teach across content areas such as biology, chemistry, physics, and earth/space science.

Rather than preparing candidates in a single science discipline, the BSEd in Science Education provides a broad, integrated foundation across the core sciences, paired with strong pedagogical preparation. Graduates will be eligible for certification that allows them to meet district staffing needs more flexibly, making them more employable and better prepared for the workforce demands of South Dakota schools.

South Dakota has experienced a persistent shortage of qualified secondary science teachers for nearly two decades. According to the South Dakota Department of Education, science has been consistently identified as a shortage area since 2006. National workforce projections further support the need for well-prepared secondary educators, with employment of high school teachers projected to grow at approximately the average rate for all occupations. The proposed program directly addresses this shortage by producing graduates with the versatility and content breadth schools require.

The curriculum intentionally integrates coursework in biology, chemistry, physics, and earth/space science, ensuring that candidates develop strong disciplinary knowledge while understanding the interconnections among scientific fields. This composite approach reflects how science is taught in many South Dakota secondary schools and ensures that graduates are prepared for the full scope of instructional responsibilities they are likely to assume.

Science Education Program Learning Outcomes (Science Content)

- Demonstrate the ability to design, understand and discuss scientific data.
- Effectively communicate scientific results orally and in writing using methods related to science.
- Identify appropriate scientific sources and analyze and interpret data.
- Demonstrate the ability to work as a team while completing research/project related endeavors.
- Demonstrate the ability to design and conduct scientific research.
- Establish skills in core disciplines of biology, chemistry, physics, and the earth sciences.

Teacher Candidate Outcomes (Professional Knowledge, Skills, and Dispositions)

- Teacher candidates will understand how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and design and implement developmentally appropriate and challenging learning experiences.
- Teacher candidates will use understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.
- Teacher candidates will work with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self-motivation.

- Teacher candidates will understand the central concepts, tools of inquiry, and structures of the discipline(s) they teach and create learning experiences that make these aspects of the discipline accessible and meaningful for learners to assure mastery of the content.
- Teacher candidates will understand how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.
- Teacher candidates will understand and use multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and learner's decision making.
- Teacher candidates will plan instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.
- Teacher candidates will understand and use a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.
- Teacher candidates will engage in ongoing professional learning and use evidence to continually evaluate their practice, particularly the effects of their choices and actions on others (learners, families, other professionals, and the community) and adapt practice to meet the needs of each learner.
- Teacher candidates will seek appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession.

Section IV. Program Requirements

Attach programs of study that identify *all* of the requirements for the completion of this new or amended program.

Course	Title	Credits
FYS 101	First Year Seminar	2
BIOL 130	Success in Science	1
BIOL 151/L	General Biology/Lab	4
BIOL 153/L	General Biology II/Lab	4
CHEM 112/L	General Chemistry I/Lab	4
CHEM 114/L	General Chemistry II/Lab	4
GEOG 131/L	Physical Geography: Weather and Climate/Lab	4
GEOG 132/L	Physical Geography: Natural Landscapes/Lab	4
GEOL 360/L	Earth & Space Sciences/Lab	4
PHYS 111/L	Introduction to Physics/Lab	4
PHYS 113/L	Introduction to Physics II/Lab	4
EDFN 102	Introduction to Education	3
SPED 100	Introduction to Persons with Exceptionalities	3
EPSY 302	Educational Psychology	3
EPSY 296	Field Experience	0
INED 411	South Dakota Indian Studies	3
SPED 441	Inclusive Methods for Diverse Learners	2
SEED 396	Field Experience	1
SEED 420	5-12 Philosophy and Pedagogy	3
EDFN 440	Classroom Management	3
EPSY 428	Child & Adolescent Development	3
SEED 496	Field Experience	2

ELRN 485	Classroom Technology	3
SEED 460	Elevating Content Literacy in Innovative Classrooms	3
EDFN 445	Methods of Teaching English and Academic Content to English Learners	3
EDFN 472	School Law & Ethics for Educators	2
SEED 488	Student Teaching	6

In addition to the above requirements, students will complete seven credits of approved science electives and will be required to take and pass the Praxis General Science content examination and the Praxis Principles of Learning and Teaching (PLT) examination.

Section V. Compliance with Program Standards

Attach:

- A matrix that defines how the required courses/experiences of this new or amended program will meet the specific program standards; and
- Verification of compliance to *all* applicable program standards; and
- An institutional response to the program standards, including a correlation of standards to course objectives; and
- *All* applicable course descriptions and syllabi.

The Bachelor of Science in Education (BSEd) in Science Education is fully aligned with ARSD 24:53:07:10 and the National Science Teachers Association (NSTA) Standards (2012 edition) for secondary science education. The program is designed as a science composite, providing candidates with systematic, quantitative, and qualitative preparation across biology, chemistry, physics, and earth/space science, thereby meeting the composite requirements outlined in ARSD 24:53:07:10(1)–(6). Required coursework in biology, chemistry, physics, and physical geography ensures candidates develop disciplinary content knowledge consistent with NSTA secondary science content recommendations, while integrated laboratory experiences strengthen scientific inquiry, data analysis, and research skills. Professional education coursework and clinical experiences align with the InTASC Standards, enabling candidates to demonstrate the content, pedagogical, and professional knowledge and skills required for effective secondary science instruction. Candidates are further required to demonstrate competency through multiple assessment measures as outlined in ARSD chapters 24:53:04, 24:53:05, and 24:53:06, including successful completion of field experiences, student teaching, and the Praxis General Science and Principles of Learning and Teaching examinations.

InTASC Standard	**SD Administrative Rule / NSTA Alignment**	**Aligned Program Learning Outcome(s)**	**Aligned Courses / Experiences**
#1 Learner Development	NSTA Standards: Knowledge of learners, learning theory, and development	Teacher candidates will understand how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and design and implement developmentally appropriate and challenging learning	EDFN 102, EPSY 302, EPSY 296, EPSY 428, SEED 488

		experiences.	
#2 Learning Differences	NSTA Standards: Understanding of learner variability and instructional responsiveness	Teacher candidates will use understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.	SPED 100, EPSY 302, INED 411, SPED 411, EDFN 445, SEED 488
#3 Learning Environments	NSTA Standards: Safe and inquiry-based learning environments	Teacher candidates will work with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self-motivation.	EDFN 440, SPED 100, INED 411, SEED 488
#4 Content Knowledge	ARSD 24:53:07:10(2)–(6): Biology, Chemistry, Physics, Earth/Space Science (NSTA Secondary Content)	Establish skills in core disciplines of biology, chemistry, physics, and the earth sciences.	BIOL 151/L, BIOL 153/L, CHEM 112/L, CHEM 114/L, PHYS 111/L, PHYS 113/L, GEOG 131/L, GEOG 132/L, GEOG 360/L, Praxis General Science
#5 Application of Content	ARSD 24:53:07:10(1): Science Composite Program Requirements	Demonstrate the ability to design, understand, and discuss scientific data; and demonstrate the ability to design and conduct scientific research.	BIOL 130, BIOL 151/L, CHEM 114/L, PHYS 113/L, GEOG 360/L, SEED 460, SEED 488
#6 Assessment	NSTA Standards: Assessment and evaluation of student learning	Teacher candidates will understand and use multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and learner's decision making.	SEED 420, SEED 460, EDFN 440, SEED 396, SEED 496, SEED 488
#7 Planning for Instruction	NSTA Standards: Instructional planning and curriculum alignment	Teacher candidates will plan instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as	SEED 420, SEED 460, EDFN 445, SEED 496, SEED 488

		well as knowledge of learners and the community context.	
#8 Instructional Strategies	NSTA Standards: Science pedagogy and instructional practice	Teacher candidates will understand and use a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.	SEED 420, SEED 460, EDFN 445, SPED 411, SEED 488
#9 Professional Learning & Ethical Practice	NSTA Standards; ARSD 24:53:04–06: Professional responsibility and ethics	Teacher candidates will engage in ongoing professional learning and use evidence to continually evaluate their practice, particularly the effects of their choices and actions on others, and adapt practice to meet the needs of each learner.	EDFN 102, EDFN 472, SEED 420, SEED 488
#10 Leadership & Collaboration	NSTA Standards: Leadership, collaboration, and professional engagement	Teacher candidates will seek appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth and advance the profession.	SEED 420, SEED 496, SEED 488

BIOL 130 Success in Science
Introductory seminar course designed to introduce students to the sciences. Topics covered will include general topics such as study skills and utilization of campus resources, and development of four-year plans, among others. Developing science-specific skills such as reading/utilizing scientific literature and understanding/conducting basic research will also be covered. Career exploration may also be included. Required for students with declared majors in the sciences.

BIOL 151/151L General Biology I & Lab
The introductory course for those majoring in biology and microbiology. Presents the concepts or cell biology, evolution, heredity, molecular genetics and ecology.

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BIOL 153/153L General Biology II & Lab
A continuation of BIOL 151, the introductory course for those majoring in biology and microbiology. Presents the concepts of animal and plant structure and function, energetics, and reproduction.

CHEM 112/112L General Chemistry I & Lab
An introduction to the basic principles of chemistry for students needing an extensive background in chemistry (including chemistry majors, science majors, and pre-professional students). Completion of a high school course in chemistry is recommended.

CHEM 114/114L General Chemistry II & Lab
A continuation of CHEM 112. An introduction to the basic principles of chemistry for students needing an extensive background in chemistry.

GEOG 131/131L Physical Geography: Weather/Climate & Lab
An introduction to the physical patterns of the Earth focusing location, Earth-sun relationships, portrayal of the Earth, cartographic analysis, and weather and climate phenomena.

GEOG 132/132L Physical Geography: Natural Landscapes & Lab
An introduction to Earth's natural landscapes focusing on landforms as spatial features and their processes plus consideration of human-environmental interactions.

GEOL 360/360L Earth & Space Sciences & Lab
This course examines the Earth and its place in the Universe. Selected topics include the solar system, rocks and minerals, Earth's history, Earth's structure, geochemistry, and geophysics.

PHYS 111/111L Introduction to Physics I & Lab
This is the first course in a two-semester algebra-level sequence, covering fundamental concepts of physics. The sequence is appropriate for pre-professional majors requiring two semesters of physics. Topics include classical mechanics, thermodynamics, and waves.

PHYS 113/113L Introduction to Physics II & Lab
This course is the second course in a two-semester algebra-level sequence, covering fundamental concepts of physics. Topics include electricity and magnetism, sound, light, optics, and some modern physics concepts.

FYS 100 First Year Seminar
Offered in a variety of academic interest areas, the First Year Seminar supports acquisition of the liberal arts skills necessary for college success. Students will develop their critical thinking, writing, and speaking in supporting their positions on particular topics using relevant evidence and personal experiences. Students will carry out effective group collaboration and engage strong reading and communication skills for ongoing college success and living and working in a diverse world.

EDFN 102 Introduction to Education
This course focuses on education in the multicultural society of the United States. From the founding of common schools in the nineteenth century to the drive to provide mass public schooling in the twentieth century, the purposes of education often have been conflicting and the outcomes of schooling complicated. The course will urge you to develop new understandings of the role and nature of schools and teaching, as well as to construct alternative perspectives on and approaches to examining educational issues. Additionally, students will complete classroom observations.

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SPED 100 Introduction to Persons with Exceptionalities
A survey of the various exceptionalities and implications of education; the history and philosophy of special education; and state and federal legislation affecting special education.

EPSY 302 Educational Psychology
A comprehensive study of the fundamental psychological facts, principles and theories that apply to the nature of the learner and the learning process.

EPSY 296 Field Experience
Applied, monitored, and supervised field-based learning experience for which the student may or may not be paid. Students gain practical experience; they follow a negotiated and/or directed plan of study established by the student, instructor, and field-based supervisor. Due to the presence of a field experience supervisor, a lower level of supervision is provided by the instructor in these courses than is the case with an internship or practicum course. (2 days)

EDFN 440 Classroom Management
This course is designed to explore the principles and practices of effective classroom management. It also examines methods of establishing a safe, orderly, and equitable learning environment that fosters positive social interaction, active engagement in learning, and self-motivation.

EPSY 428 Child and Adolescent Development
An overview of human physiological, psychological, and social changes occurring from birth throughout adolescence with emphasis on the developmental characteristics of elementary, middle, and secondary level learners.

EDFN 472 School Law and Ethics for Educators
Addresses the legal foundations of P-12 education in American society and the application of legal principles to promote educational equity and provide safe and supportive learning environments. Topics include an analysis of laws relating to general and special education, employment and continuing contract, confidentiality, church/state conflicts, control over the curriculum, teachers' legal responsibilities, and students' rights. Also addressed is the Code of Professional Ethics for Teachers.

INED 411 South Dakota Indian Studies
A basic knowledge of Indian history with emphasis on the Lakota, Dakota, and Nakota speaking people. Current cultural issues are presented including values, family structures, traditional religion, fine arts, legends, economics, governmental policies, treaties, acts and related areas. Focuses on teaching methods, content and materials to equip students to teach bi-culturally.

SPED 441 Inclusive Methods for Diverse Learners
This course addresses the roles and responsibilities of special and general educators as they instruct individuals with special needs and individuals from diverse cultural and linguistic backgrounds. The major focus of the course is to identify research-based practices, such as collaboration, differentiation, and Response to Intervention (RTI) practices, designed to promote achievement of diverse students in contemporary classrooms.

SEED 396 Field Experience
Applied, monitored, and supervised field-based learning experience for which the student may or may not be paid. Students gain practical experience; they follow a negotiated and/or directed plan of study established by the student, instructor, and field-based supervisor. Due to the presence of a field experience supervisor, a lower level of supervision is provided by the instructor in these courses than is the case with an internship or practicum course. (30 hours)

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ELRN 485 Classroom Technology
This course prepares students to use the latest classroom technologies to effectively support learning in face-to-face settings. Students also learn about current issues with the use of technology in K-12 educational settings. Technologies featured in this course are chosen based on current best practice by K-12 teachers. Students will also learn and use an authentic project-based learning approach to design effective learning experiences using current and future technologies.

SEED 460 Elevating Content Literacy in Innovative Classrooms
This course explores advanced methods to elevate content literacy in secondary classrooms while integrating innovative instructional design techniques. Participants will engage in a synthesis of theoretical study and practical application, uncovering cutting-edge strategies to utilize technology, multimedia resources, and collaborative learning techniques to enhance all facets of literacy.

SEED 420 5-12 Philosophy and Pedagogy
This course is designed to prepare caring, competent, and confident professionals for 21st-century middle and secondary education by providing general teaching methods and strategies. It focuses on planning and developing instruction that respects learner differences and devising appropriate assessment methods. Students will explore rich philosophical and innovative pedagogical strategies through theoretical exploration and hands-on application, investigating authentic curriculum design and effective teaching methods tailored to adolescents and older teens. The course content and learning activities are individualized for different education majors, integrating technology, media, instructional aids, and resources relevant to each content area.

SEED 496 Field Experience (Pre-Student Teaching)
Applied, monitored, and supervised field-based learning experience for which the student may or may not be paid. Students gain practical experience; they follow a negotiated and/or directed plan of study established by the student, instructor, and field-based supervisor. Due to the presence of a field experience supervisor, a lower level of supervision is provided by the instructor in these courses than is the case with an internship or practicum course. Admission to Teacher Education required. (60 hours)

SEED 488 Student Teaching
Students preparing for teaching in the secondary school will observe, participate, and teach under the supervision of the regular classroom teacher in an approved middle or secondary school. Grade assigned S/U. An additional fee applies to this course. Admission to Teacher Education required.

Section VI. Faculty

Identify:

- The current faculty who will teach this new or amended program, their teaching assignments, and their relevant professional preparation and expertise; and
- Additional or vacant faculty positions and assignments, and indicate when the supporting documentation for them will be submitted.

Faculty Member	Role	Teaching Assignments	Professional Preparation	Expertise
Dr. Nicole Schutter	Faculty; Teacher Education Department Chair	EDFN 440	Ed.D. Educational Leadership University of South Dakota	Active SD administrator and teacher license; 18 years of experience
Monte Nipp	Clinical Supervisor	SEED 396; SEED 496; SEED 488	Ed.S Educational	Active SD administrator and

			Leadership University of South Dakota	teacher license; 38 years of experience as a P-12 teacher, principal, and superintendent
Dr. Derrick Cameron	Faculty	SEED 420; SEED 460	Ed.D., Educational Leadership, University of Calgary	25 years of teaching and administrator experience in grades 6-12
Dr. Christian Pirlet	Faculty	ELRN 485	Ed.D. in Curriculum & Instruction	K-12 teaching experience, extensive research and expertise in E-Learning
Dr. Leslie Sauder	Faculty	EDFN 102	Ph.D. Human Development and Educational Psychology, USD	Active SD teacher license; 18 years of teaching experience
Brett Schwan	Adjunct Faculty	EDFN 472	MSEd in Leadership and Administration, NSU	Active SD administrator and teacher license; 20 years of experience as a teacher and administrator
Dr. Pamela Monaghan-Geernaert	Faculty	INED 411	Ph.D. in Sociology from Case Western Reserve University	Vast expertise in Indigenous studies
Dr. Cheng Hsien Wu	Faculty	EPSY 302; EPSY 428	Ph.D. in Interdisciplinary Education from West Virginia University	K-12 teaching experience, extensive research and training in mentoring student teachers
Natasha Opp	Faculty	SPED 100; SPED 441	MSEd in Special Education from UND	Active SD teacher license; 7 years teaching PK-12th special education
Jodie Ramsay	Faculty	BIOL 130; BIOL 151/L; BIOL 153	Ph.D. in Biology from USD	Expert in the discipline, terminal degree
Eric Pullis	Faculty	BIOL 153L	Ph.D. in Biology from University of Southern Mississippi	Expert in the discipline, terminal degree
Guangwei Ding	Faculty	CHEM 112; CHEM 112L; CHEM 114	Ph.D. in Chemistry University of Massachusetts at Amherst	Expert in the discipline, terminal degree
George Nora	Faculty	CHEM 114L	Ph.D. in Chemistry from Notre Dame	Expert in the discipline, terminal degree
Brad Richardson	Faculty	GEOG 131/L; GEOG 132/L	MS in Geography from SDSU	Expert in discipline, years of experience teaching
John Long	Science	PHYS 111/L; PHYS	PH.D in Ecology &	Expert in the

	Department Chair	113L; GEOL 360/L	Environmental Sciences from Montana State University	discipline, terminal degree; experience teaching K-12

Section VII. Library Facilities

Describe:

- The library media and technology resources currently available for this new or amended program; and
- Plans for the acquisition of new library and technology resources to support and sustain the program, if applicable.

Northern State University's Williams Library provides a wide variety of print and electronic resources to support NSU's Education programs. The print education collection underwent a thorough examination during FY19, which led to the elimination of materials that were not updated or current. Purchases of print education materials comprise approximately 20% of the library's print material budget. In addition, electronic resources to support education include top-tier databases such as Education Research Complete, Psych/Soc Articles with Full Text, and Academic Search Complete. Within these databases are thousands of full text scholarly journals, which are used heavily by students in the Millicent Atkins School of Education.

Additional video and audio materials are available remotely for educators via several on-demand online databases. For materials that are not available in NSU databases or on site, a robust interlibrary loan program exists. Articles, books, and other support materials can be obtained from libraries across the region.