

# Elementary Education (BS): Science, Technology, Engineering, and Mathematics Concentration

Unique among undergraduate teacher education programs, this degree creates teacher-leaders with deep content knowledge in all elementary disciplines with a special emphasis on science, technology, engineering, and mathematics for a strong STEM-focused instruction.

To learn more about this concentration, please visit our website at Elementary Education (BS) (<https://ced.ncsu.edu/programs/elementary-education-bachelor/>)

## Plan Requirements

Code	Title	Hours
<b>Writing</b>		
ENG 101	Academic Writing and Research <sup>1</sup>	4
<b>Mathematics</b>		
MA 151	Calculus for Elementary Education I	3
MA 152	Calculus for Elementary Education II	3
ST 101	Statistics by Example	3
or ST 311	Introduction to Statistics	
STEM Concentration: Additional Math Elective (p. 2)		3
<b>Sciences</b>		
PY 131	Conceptual Physics	4
Select one of the following:		4
CH 100	Chemistry and Society	
CH 101	Chemistry - A Molecular Science	
& CH 102	and General Chemistry Laboratory	
BIO 105	Biology in the Modern World	
& BIO 106	and Biology in the Modern World Laboratory	
BIO 181	Introductory Biology: Ecology, Evolution, and Biodiversity	
STEM Concentration: Additional Science Elective (p. 2)		3
<b>Engineering, Tech, Design</b>		
Engineering, Tech, Design Elective (p. 2)		3
<b>Humanities &amp; Social Science</b>		
ENG Elective (p. 2)		3
HI Elective (p. 3)		3
EDP 304	Educational Psychology <sup>2</sup>	3
EDP 370	Applied Child Development	3
or PSY 376	Developmental Psychology	
SOC 202	Principles of Sociology	3
or SOC 203	Current Social Problems	
or SOC 204	Sociology of Family	
or ANT 254	Introduction to Linguistic Anthropology	

GEP Social Sciences (<http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/>) 3

### Professional Education

ED 100	Intro to Education <sup>2</sup>	2
ED 311	Classroom Assessment Principles and Practices <sup>2</sup>	2
ED 312	Classroom Assessment Principles and Practices Professional Learning Lab <sup>2</sup>	1
ELM 250	Introduction to Elementary Education in a Global Society <sup>3</sup>	3
ELM 310	Children's Thinking and Additive Reasoning <sup>2</sup>	3
ELM 320	Teaching Science in the Primary Grades <sup>2</sup>	3
ELM 330	Teaching Reading in Elementary School: K-2 <sup>2</sup>	3
ELM 370	Connections Seminar II- The Elementary Classroom and School Community <sup>2</sup>	3
ELM 410	Children's Thinking and Multiplicative Reasoning <sup>2</sup>	3
ELM 460	Social Studies for the Young Learner <sup>2</sup>	3
ELM 335	Teaching Reading in the Elementary School: 3-5 <sup>2</sup>	3
ELM 340	Children Design, Create and Invent <sup>2</sup>	3
ELM 375	Connections Seminar I- Cultural Identity, Social Justice and Diverse Learners <sup>2</sup>	3
ELM 440	Teaching Students with Disabilities in Inclusive Elementary Classrooms <sup>2</sup>	3
ELM 430	Teaching Language Arts in the Elementary School <sup>2</sup>	3
ELM 420	Teaching Science in the Intermediate Grades <sup>2</sup>	3
ELM 450	The Arts for Elementary Education <sup>2</sup>	3
ELM 400	Connections Seminar III- Instructional Design and Assessment <sup>2</sup>	3
ELM 480	Connections Seminar IV Linking Theory and Practice	3
ELM 484	Student Teaching in Elementary Education <sup>2</sup>	9

### GEP Courses

GEP Health and Exercise Studies ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/</a> )	2
GEP Interdisciplinary Perspectives ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/</a> )	5
GEP Elective ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/</a> )	3
GEP Global Knowledge ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-global-knowledge/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-global-knowledge/</a> ) (verify requirement)	
GEP Foundations of American Democracy ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-fad/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-fad/</a> ) (verify requirement)	
World Language Proficiency ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/world-language-proficiency/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/world-language-proficiency/</a> ) (verify requirement)	

**Total Hours** 120

<sup>1</sup> A grade of C- or higher is required.

<sup>2</sup> A grade of C or higher is required.

<sup>3</sup> A grade of B or higher is required.

## STEM Concentration: Additional Math Electives

Code	Title	Hours
LOG 335	Symbolic Logic	3
MA 103	Topics in Contemporary Mathematics	3
MA 103A	Topics in Contemporary Mathematics	3
MA 105	Mathematics of Finance	3
MA 107	Precalculus I	3
MA 111	Precalculus Algebra and Trigonometry	3
MA 114	Introduction to Finite Mathematics with Applications	3
MA 205		3
MA 231	Calculus for Life and Management Sciences B	3
MA 241	Calculus II	4
MA 335	Symbolic Logic	3
MSGE 295	Mathematical Sciences Special Topics	3
ST 101	Statistics by Example	3
ST 311	Introduction to Statistics	3
ST 312	Introduction to Statistics II	3
GC 320	3D Spatial Relations	3
HON 291	Honors Special Topics-Mathematics	3
LOG 201	Logic	3
LOG 335	Symbolic Logic	3
MA 335	Symbolic Logic	3
PHI 250	Thinking Logically	3

## STEM Concentration: Additional Science Elective

Code	Title	Hours
ENT 201	Insects and People	3
ENT 425	General Entomology	3
FW 221	Conservation of Natural Resources	3
MEA 200	Introduction to Oceanography	3
MEA 220	Marine Biology	3
PY 124	Solar System Astronomy	3
ZO 410	Introduction to Animal Behavior	3

## Engineering, Tech, Design Electives

Code	Title	Hours
AEE 208	Agricultural Biotechnology: Issues and Implications	3
ANS 208	Agricultural Biotechnology: Issues and Implications	3
ANT 261	Technology in Society and Culture	3
ARS 257	Technology in the Arts	3
D 100	Design Inquiry I: Methods and Processes	3
D 101	Design Inquiry II: Methods and Processes	3
ECI 201	Intro to Instructional Technology for Educators	3
GC 120	Foundations of Graphics	3
MSE 201	Structure and Properties of Engineering Materials	3
PB 208	Agricultural Biotechnology: Issues and Implications	3
SOC 261	Technology in Society and Culture	3
STS 210	Women and Gender in Science and Technology	3
STS 214	Introduction to Science, Technology, and Society	3

STS 257	Technology in the Arts	3
STS 302	Contemporary Science, Technology and Human Values	3
STS 304	Ethical Dimensions of Progress	3
STS 322	Technological Catastrophes	3
STS 405	Technology and American Culture	3
WGS 210	Women and Gender in Science and Technology	3

## ENG Electives

Code	Title	Hours
AFS 248	Survey of African-American Literature	3
AFS 349	African Literature in English	3
AFS 448	African-American Literature	3
AFS 548	African-American Literature	3
CLA 320	Masterpieces of Classical Literature	3
CLA 325	Gender, Ethnicity & Identity in the Ancient World	3
COM 395	Studies in Rhetoric and Digital Media	3
ENG 206	Studies In Drama	3
ENG 207	Studies in Poetry	3
ENG 208	Studies In Fiction	3
ENG 209	Introduction to Shakespeare	3
ENG 219	Studies in Great Works of Non-Western Literature	3
ENG 220	Studies in Great Works of Western Literature	3
ENG 221	Literature of the Western World I	3
ENG 222	Literature of the Western World II	3
ENG 223	Contemporary World Literature I	3
ENG 224	Contemporary World Literature II	3
ENG 232	Literature and Medicine	3
ENG 246	Literature of the Holocaust	3
ENG 248	Survey of African-American Literature	3
ENG 249	Native American Literature	3
ENG 251	Major British Writers	3
ENG 252	Major American Writers	3
ENG 255	Beyond Britain: Literature from Colonies of the British Empire	3
ENG 261	English Literature I	3
ENG 262	English Literature II	3
ENG 265	American Literature I	3
ENG 266	American Literature II	3
ENG 267	LGBTQI Literature in the U.S.	3
ENG 275	Literature and War	3
ENG 305	Women and Literature	3
ENG 308	Contemporary Issues in Ecofeminism	3
ENG 326	History of the English Language	3
ENG 329	Language in Globalization	3
ENG 342	Literature of Space and Place	3
ENG 349	African Literature in English	3
ENG 361	Studies in British Poetry	3
ENG 362	Studies in the British Novel	3
ENG 369	The American Novel of the 19th Century	3
ENG 370	American Fiction, Twentieth Century and Beyond	3
ENG 372	American Poetry, Twentieth Century and Beyond	3

ENG 377	Fantasy	3
ENG 380	Modern Drama	3
ENG 385	Biblical Backgrounds of English Literature	3
ENG 390	Classical Backgrounds of English Literature	3
ENG 392	Major World Author	3
ENG 393	Studies in Literary Genre	3
ENG 394	Studies in World Literature	3
ENG 395	Studies in Rhetoric and Digital Media	3
ENG 399	Contemporary Literature	3
ENG 406	Modernism	3
ENG 407	Postmodernism	3
ENG 410	Studies in Gender and Genre	3
ENG 420	Major American Authors	3
ENG 439	Studies in English Renaissance Literature	3
ENG 448	African-American Literature	3
ENG 451	Chaucer	3
ENG 460	Major British Author	3
ENG 464	British Literature and the Founding of Empire	3
ENG 465	British Literature and the Dissolution of Empire	3
ENG 466	Transatlantic Literatures	3
ENG 467	American Colonial Literature	3
ENG 468	Studies in Nineteenth-Century American Literature	3
ENG 470	American Literature, Twentieth Century and Beyond	3
ENG 476	Southern Literature	3
ENG 486	Shakespeare, The Earlier Plays	3
ENG 487	Shakespeare, The Later Plays	3
ENG 548	African-American Literature	3
FL 219	Studies in Great Works of Non-Western Literature	3
FL 220	Studies in Great Works of Western Literature	3
FL 221	Literature of the Western World I	3
FL 222	Literature of the Western World II	3
FL 223	Contemporary World Literature I	3
FL 224	Contemporary World Literature II	3
FL 246	Literature of the Holocaust	3
FL 275	Literature and War	3
FL 392	Major World Author	3
FL 393	Studies in Literary Genre	3
FL 394	Studies in World Literature	3
FL 406	Modernism	3
FL 407	Postmodernism	3
HUMU 295	Humanities and U.S. Diversity Special Topics	3
WGS 305	Women and Literature	3
WGS 308	Contemporary Issues in Ecofeminism	3
WGS 410	Studies in Gender and Genre	3

## HI Elective

Code	Title	Hours
<b>Humanities HI 1</b>		
AFS 275	Introduction to History of South and East Africa	3
AFS 276	Introduction to History of West Africa	3

AFS 372	African-American History Through the Civil War, 1619-1865	3
AFS 373	African-American History Since 1865	3
HA 240	Introduction to Visual Culture	3
HI 207	Ancient Mediterranean World	3
HI 208	The Middle Ages	3
HI 209	From Renaissance to Revolution: The Origins of Modern Europe	3
HI 210	Modern Europe 1815-Present	3
HI 214	History and Archaeology of Ancient Latin America	3
HI 215	Colonial Latin America	3
HI 216	Modern Latin America	3
HI 217	Caribbean History	3
HI 221	British History to 1688	3
HI 222	History of British Cultures and Societies From 1688	3
HI 232	The World from 1200 to 1750	3
HI 233	The World Since 1750	3
HI 240	Introduction to Visual Culture	3
HI 251	American History I	3
HI 252	American History II	3
HI 253	Early U.S. History	3
HI 254	Modern U.S. History	3
HI 263	Asian Civilizations to 1800	3
HI 264	Modern Asia: 1800 to Present	3
HI 270	Modern Middle East	3
HI 275	Introduction to History of South and East Africa	3
HI 276	Introduction to History of West Africa	3
HI 305	Frauds and Mysteries of the Past	3
HI 307	Jewish History	3
HI 317	Cuba Today: Historical and Sociopolitical Perspectives	3
HI 320	Religion in American History	3
HI 321	Scientific Revolution and European Society, 1500-1800	3
HI 324	History of Common Law and Constitution	3
HI 332	Germany and the World Wars	3
HI 335	The World at War	3
HI 337	Spy vs. Spy: Cold War Intelligence History	3
HI 338	Empire, War, and Revolution in Russia	3
HI 340	History of Agriculture	3
HI 345	American Popular Culture	3
HI 346	The Civil War Era in Popular Culture	3
HI 350	American Military History	3
HI 351	U.S. Naval History	3
HI 354	The Rise of the American Empire	3
HI 360	U.S. Agricultural History	3
HI 364	History of North Carolina	3
HI 365	The American West	3
HI 366	Native American History	3
HI 370	Modern Egypt	3
HI 371	Modern Japan, 1850 to Present	3

HI 372	African-American History Through the Civil War, 1619-1865	3
HI 373	African-American History Since 1865	3
HI 374	Visual Culture of Modern South Asia	3
HI 380	History of Nonprofits, Philanthropy, and Social Change	3
HI 381	Change-makers in a Global Context	3
HI 385	Introduction to Public History	3
HI 403	Ancient Greek Civilization	3
HI 407	Islamic History to 1798	3
HI 408	Islam in the Modern World	3
HI 409	The High Middle Ages	3
HI 410	Italian Renaissance	3
HI 441	Colonial and Revolutionary U.S	3
HI 445	Early American Borderlands	3
HI 446	Topics in Civil War and Reconstruction	3
HI 447	Women in America to 1890	3
HI 448	American Women in the Twentieth Century	3
HI 452	Recent America	3
HI 453	United States-Latin American Relations Since 1823	3
HI 454	History of U.S. Foreign Relations, 1900-Present	3
HI 503	Ancient Greek Civilization	3
HI 509	The High Middle Ages	3
HI 541	Colonial and Revolutionary U.S	3
HI 545	Early American Borderlands	3
HI 546	Topics in Civil War and Reconstruction	3
HI 547	Women in America to 1890	3
HI 548	American Women in the Twentieth Century	3
HI 552	Recent America	3
HI 553	United States-Latin American Relations Since 1823	3
REL 320	Religion in American History	3
REL 407	Islamic History to 1798	3
REL 408	Islam in the Modern World	3
WGS 447	Women in America to 1890	3
WGS 448	American Women in the Twentieth Century	3
WGS 547	Women in America to 1890	3
WGS 548	American Women in the Twentieth Century	3
<b>Humanities HI 2</b>		
AFS 455	History of the Civil Rights Movement	3
AFS 475	History of the Republic of South Africa	3
AFS 476	Leadership in Modern Africa	3
AFS 479	Africa (sub-Saharan) in the Twentieth Century	3
AFS 555	History of the Civil Rights Movement	3
AFS 575	History of the Republic of South Africa	3
AFS 576	Leadership in Modern Africa	3
AFS 579	Africa (sub-Saharan) in the Twentieth Century	3
HI 455	History of the Civil Rights Movement	3
HI 459	The Early American Republic	3
HI 461	Slavery and the American South 1607-1861	3
HI 462	Southern History since the Civil War	3
HI 475	History of the Republic of South Africa	3

HI 476	Leadership in Modern Africa	3
HI 478	Islam and Christianity in Sub-Saharan Africa	3
HI 479	Africa (sub-Saharan) in the Twentieth Century	3
HI 486	Science and Empire	3
HI 555	History of the Civil Rights Movement	3
HI 559	The Early American Republic	3
HI 561	Slavery and the American South 1607-1861	3
HI 562	Southern History since the Civil War	3
HI 575	History of the Republic of South Africa	3
HI 576	Leadership in Modern Africa	3
HI 579	Africa (sub-Saharan) in the Twentieth Century	3
HI 586	Science and Empire	3

## Semester Sequence

This is a sample.

### First Year

Fall Semester		Hours
ED 100	Intro to Education <sup>1</sup>	2
GEP Health and Exercise Studies ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/</a> )		1
ENG 101	Academic Writing and Research	4
GEP Interdisciplinary Perspectives ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/</a> )		3
Select one of the following:		4
CH 100	Chemistry and Society	
CH 101 & CH 102	Chemistry - A Molecular Science and General Chemistry Laboratory	
BIO 105 & BIO 106	Biology in the Modern World and Biology in the Modern World Laboratory	
BIO 181	Introductory Biology: Ecology, Evolution, and Biodiversity	
STEM Concentration: Additional Math Elective (p. 2)		3
<b>Hours</b>		<b>17</b>

### Spring Semester

GEP Health and Exercise Studies ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/</a> )		1
MA 151	Calculus for Elementary Education I	3
PY 131	Conceptual Physics	4
SOC 202	Principles of Sociology	3
or SOC 203	or Current Social Problems	
or SOC 204	or Sociology of Family	
or ANT 254	or Introduction to Linguistic Anthropology	
HI Elective (p. 3)		3
<b>Hours</b>		<b>14</b>

### Second Year

Fall Semester		
EDP 370	Applied Child Development	3
or PSY 376	or Developmental Psychology	
ENG Elective (p. 2)		3

GEP Interdisciplinary Perspectives ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/</a> )	2
MA 152 Calculus for Elementary Education II	3
GEP Elective ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/</a> )	3
Engineering, Tech, Design Elective (p. 2)	3

**Hours 17**

#### Spring Semester

EDP 304 Educational Psychology <sup>1</sup>	3
ELM 250 Introduction to Elementary Education in a Global Society <sup>2</sup>	3
ST 101 or ST 311 Statistics by Example or Introduction to Statistics	3
STEM Concentration: Additional Science Elective (p. 2)	3
GEP Social Sciences ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/</a> )	3

**Hours 15**

#### Third Year

##### Fall Semester

ELM 375 Connections Seminar I- Cultural Identity, Social Justice and Diverse Learners <sup>1</sup>	3
ELM 310 Children's Thinking and Additive Reasoning <sup>1</sup>	3
ELM 320 Teaching Science in the Primary Grades <sup>1</sup>	3
ELM 330 Teaching Reading in Elementary School: K-2 <sup>1</sup>	3
ELM 340 Children Design, Create and Invent <sup>1</sup>	3

**Hours 15**

##### Spring Semester

ELM 410 Children's Thinking and Multiplicative Reasoning <sup>1</sup>	3
ELM 420 Teaching Science in the Intermediate Grades <sup>1</sup>	3
ELM 335 Teaching Reading in the Elementary School: 3-5 <sup>1</sup>	3
ELM 460 Social Studies for the Young Learner <sup>1</sup>	3
ED 311 Classroom Assessment Principles and Practices <sup>1</sup>	2
ED 312 Classroom Assessment Principles and Practices Professional Learning Lab <sup>1</sup>	1

**Hours 15**

#### Fourth Year

##### Fall Semester

ELM 400 Connections Seminar III- Instructional Design and Assessment <sup>1</sup>	3
ELM 370 Connections Seminar II- The Elementary Classroom and School Community <sup>1</sup>	3
ELM 440 Teaching Students with Disabilities in Inclusive Elementary Classrooms <sup>1</sup>	3
ELM 430 Teaching Language Arts in the Elementary School <sup>1</sup>	3
ELM 450 The Arts for Elementary Education <sup>1</sup>	3

**Hours 15**

#### Spring Semester

ELM 484 Student Teaching in Elementary Education <sup>1</sup>	9
ELM 480 Connections Seminar IV Linking Theory and Practice <sup>1</sup>	3
<b>Hours</b>	<b>12</b>
<b>Total Hours</b>	<b>120</b>

<sup>1</sup> A grade of C or higher is required.

<sup>2</sup> Student must pass with grade of B or higher to be considered for candidacy into the Elementary Education Program.

## Career Opportunities

### Career Titles

- Camp Director
- Child Care Center Administrator
- Counseling Psychologist
- Daycare Center Worker
- Elementary School Administrator
- Elementary School Teacher
- Instructional Coordinators
- Kindergarten Teacher
- Librarian
- Marriage and Family Therapists
- Recreation Worker
- Sales Representative (Educational Materials)
- School Nurse
- School Psychologist
- Social and Community Service Managers
- Social Worker
- Special Ed Teachers (Kindergarten and Elementary School)
- Youth Services Specialist

## Learn More About Careers

NCCareers.org (<https://nccareers.org/>)

Explore North Carolina's central online resource for students, parents, educators, job seekers and career counselors looking for high quality job and career information.

Occupational Outlook Handbook (<https://www.bls.gov/ooh/>)

Browse the Occupational Outlook Handbook published by the Bureau of Labor Statistics to view state and area employment and wage statistics. You can also identify and compare similar occupations based on your interests.

Career One Stop Videos (<https://www.careeronestop.org/>)

View videos that provide career details and information on wages, employment trends, skills needed, and more for any occupation. Sponsored by the U.S. Department of Labor.

Focus 2 Career Assessment (<https://careers.dasa.ncsu.edu/explore-careers/career-assessments/>) (NC State student email address required)

This career, major and education planning system is available to current NC State students to learn about how your values, interests, competencies, and personality fit into the NC State majors and your future career. An NC State email address is required to create an

account. Make an appointment with your career counselor (<https://careers.dasa.ncsu.edu/about/hours-appointments/>) to discuss the results.

Focus 2 Apply Assessment (<https://www.focus2career.com/Portal/Register.cfm?SID=1929>) (Available to prospective students)

A career assessment tool designed to support prospective students in exploring and choosing the right major and career path based on your unique personality, interests, skills and values. Get started with Focus 2 Apply and see how it can guide your journey at NC State.