

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	Counts towards
Writing			
ENG 101	Academic Writing and Research ¹	4	
Mathematics			
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	
Sciences			
PY 131	Conceptual Physics	4	
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 Science Elective (p. 3)		3	
Engineering, Tech, Design			
Engineering, Tech, Design Elective (p. 3)		3	
Humanities & Social Science			
ENG Elective (p. 3)		3	
HI Elective (p. 5)		3	
EDP 304	Educational Psychology ²	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	Language and Culture		
GEP Social Sciences (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/)		3	
Professional Education			
ED 100	Intro to Education ²	2	
ED 311	Classroom Assessment Principles and Practices ²	2	
ED 312	Classroom Assessment Principles and Practices Professional Learning Lab ²	1	
ELM 250	Introduction to Elementary Education in a Global Society ³	3	
ELM 310	Children's Thinking and Additive Reasoning ²	3	
ELM 320	Teaching Science in the Primary Grades ²	3	
ELM 330	Teaching Reading in Elementary School: K-2 ²	3	

ELM 370	Connections Seminar II- The Elementary Classroom and School Community ²	3
ELM 410	Children's Thinking and Multiplicative Reasoning ²	3
ELM 460	Social Studies for the Young Learner ²	3
ELM 335	Teaching Reading in the Elementary School: 3-5 ²	3
ELM 340	Children Design, Create and Invent ²	3
ELM 375	Connections Seminar I- Cultural Identity, Social Justice and Diverse Learners ²	3
ELM 440	Teaching Children with Special Needs in the Elementary Classroom ²	3
ELM 430	Teaching Language Arts in the Elementary School ²	3
ELM 420	Teaching Science in the Intermediate Grades ²	3
ELM 450	The Arts for Elementary Education ²	3
ELM 400	Connections Seminar III- Instructional Design and Assessment ²	3
ELM 480	Connections Seminar IV- Linking Theory and Practice	3
ELM 484	Student Teaching in Elementary Education ²	9

GEP Courses

GEP Health and Exercise Studies (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/)	2
GEP Additional Breadth (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/) (Mathematical Sciences/Natural Sciences/Engineering)	3
GEP Interdisciplinary Perspectives (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/)	5
GEP U.S. Diversity (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-us-diversity/) (verify requirement)	
GEP Global Knowledge (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-global-knowledge/) (verify requirement)	
Foreign Language Proficiency (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/foreign-language-proficiency/) (verify requirement)	

Total Hours **120**

- ¹ A grade of C- or higher is required.
- ² A grade of C or higher is required.
- ³ A grade of B or higher is required.

STEM Concentration: Additional Math Electives

Code	Title	Hours	Counts towards
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	Elements of Matrix Computations	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	Counts towards
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	Counts towards
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	Counts towards
AFS 248	Survey of African-American Literature	3	
AFS 349	African Literature in English	3	

AFS 448	African-American Literature	3	ENG 266	American Literature II	3
AFS 548	African-American Literature	3	ENG 267	LGBTQI Literature in the U.S.	3
CLA 320	Masterpieces of Classical Lit	3	ENG 275	Literature and War	3
CLA 325	Gender, Ethnicity & Identity in the Ancient World	3	ENG 305	Women and Literature	3
COM 395	Studies in Rhetoric and Digital Media	3	ENG 308	Contemporary Issues in Ecofeminism	3
ENG 206	Studies In Drama	3	ENG 326	History of the English Language	3
ENG 207	Studies in Poetry	3	ENG 329	Language in Globalization	3
ENG 208	Studies In Fiction	3	ENG 342	Literature of Space and Place	3
ENG 209	Introduction to Shakespeare	3	ENG 349	African Literature in English	3
ENG 219	Studies in Great Works of Non-Western Literature	3	ENG 361	Studies in British Poetry	3
ENG 220	Studies in Great Works of Western Literature	3	ENG 362	Studies in the British Novel	3
ENG 221	Literature of the Western World I	3	ENG 369	The American Novel of the 19th Century	3
ENG 222	Literature of the Western World II	3	ENG 370	American Fiction, Twentieth Century and Beyond	3
ENG 223	Contemporary World Literature I	3	ENG 372	American Poetry, Twentieth Century and Beyond	3
ENG 224	Contemporary World Literature II	3	ENG 377	Fantasy	3
ENG 232	Literature and Medicine	3	ENG 380	Modern Drama	3
ENG 246	Literature of the Holocaust	3	ENG 385	Biblical Backgrounds of English Literature	3
ENG 248	Survey of African-American Literature	3	ENG 390	Classical Backgrounds of English Literature	3
ENG 249	Native American Literature	3	ENG 392	Major World Author	3
ENG 251	Major British Writers	3	ENG 393	Studies in Literary Genre	3
ENG 252	Major American Writers	3	ENG 394	Studies in World Literature	3
ENG 255	Beyond Britain: Literature from Colonies of the British Empire	3	ENG 395	Studies in Rhetoric and Digital Media	3
ENG 261	English Literature I	3	ENG 399	Contemporary Literature	3
ENG 262	English Literature II	3	ENG 406	Modernism	3
ENG 265	American Literature I	3	ENG 407	Postmodernism	3

ENG 410	Studies in Gender and Genre	3
ENG 420	Major American Author	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	Counts towards
Humanities HI 1			
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 324	History of Common Law and Constitution	3
HI 215	Colonial Latin America	3	HI 332	Germany and the World Wars	3
HI 216	Modern Latin America	3	HI 335	The World at War	3
HI 217	Caribbean History	3	HI 337	Spy vs. Spy: Cold War Intelligence History	3
HI 221	British History to 1688	3	HI 338	Empire, War, and Revolution in Russia	3
HI 222	History of British Cultures and Societies From 1688	3	HI 340	History of Agriculture	3
HI 232	The World from 1200 to 1750	3	HI 345	American Popular Culture	3
HI 233	The World Since 1750	3	HI 346	The Civil War Era in Popular Culture	3
HI 240	Introduction to Visual Culture	3	HI 350	American Military History	3
HI 251	American History I	3	HI 351	U.S. Naval History	3
HI 252	American History II	3	HI 354	The Rise of the American Empire	3
HI 253	Early American History	3	HI 360	U.S. Agricultural History	3
HI 254	Modern American History	3	HI 364	History of North Carolina	3
HI 263	Asian Civilizations to 1800	3	HI 365	The American West	3
HI 264	Modern Asia: 1800 to Present	3	HI 366	Native American History	3
HI 270	Modern Middle East	3	HI 370	Modern Egypt	3
HI 275	Introduction to History of South and East Africa	3	HI 371	Modern Japan, 1850 to Present	3
HI 276	Introduction to History of West Africa	3	HI 372	African-American History Through the Civil War, 1619-1865	3
HI 305	Frauds and Mysteries of the Past	3	HI 373	African-American History Since 1865	3
HI 307	Jewish History	3	HI 374	Visual Culture of Modern South Asia	3
HI 317	Cuba Today: Historical and Sociopolitical Perspectives	3	HI 380	History of Nonprofits, Philanthropy, and Social Change	3
HI 320	Religion in American History	3	HI 381	NGO Nonprofits in a Global Context	3
HI 321	Scientific Revolution and European Society, 1500-1800	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: From Contact to the Civil War	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: From Contact to the Civil War	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: From Contact to the Civil War	3
WGS 448	American Women in the Twentieth Century	3
WGS 547	Women in America: From Contact to the Civil War	3
WGS 548	American Women in the Twentieth Century	3
Humanities HI 2		
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	Civilization of the Old South	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	Civilization of the Old South	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 ¹	2
GEP Health and Exercise Studies (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/)	1
ENG 101 Academic Writing and Research	4
GEP Interdisciplinary Perspectives (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/)	3
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 & 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
Hours		17
Spring Semester		
GEP Health and Exercise Studies (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/)		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 Language and Culture	
HI Elective (p. 5)		3
Hours		14
Second Year		
Fall Semester		
EDP 370	Applied Child Development	3
or PSY 376	or Developmental Psychology	
ENG Elective (p. 3)		3
GEP Interdisciplinary Perspectives (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/)		2
GEP Additional Breadth (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/) (Mathematical Sciences/Natural Sciences/Engineering)		3
MA 152	Calculus for Elementary Education II	3
Engineering, Tech, Design Elective (p. 3)		3
Hours		17
Spring Semester		
EDP 304	Educational Psychology ¹	3
ELM 250	Introduction to Elementary Education in a Global Society ²	3
ST 101	Statistics by Example	3
or ST 311	or Introduction to Statistics	
STEM Concentration: Additional Science Elective (p. 3)		3
GEP Social Sciences (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/)		3
Hours		15
Third Year		
Fall Semester		
ELM 375	Connections Seminar I- Cultural Identity, Social Justice and Diverse Learners ¹	3
ELM 310	Children's Thinking and Additive Reasoning ¹	3
ELM 320	Teaching Science in the Primary Grades ¹	3
ELM 330	Teaching Reading in Elementary School: K-2 ¹	3
ELM 340	Children Design, Create and Invent ¹	3
Hours		15

Spring Semester

ELM 410	Children's Thinking and Multiplicative Reasoning ¹	3
ELM 420	Teaching Science in the Intermediate Grades ¹	3
ELM 335	Teaching Reading in the Elementary School: 3-5 ¹	3
ELM 460	Social Studies for the Young Learner ¹	3
ED 311	Classroom Assessment Principles and Practices ¹	2
ED 312	Classroom Assessment Principles and Practices Professional Learning Lab ¹	1
Hours		15

Fourth Year**Fall Semester**

ELM 400	Connections Seminar III- Instructional Design and Assessment ¹	3
ELM 370	Connections Seminar II- The Elementary Classroom and School Community ¹	3
ELM 440	Teaching Children with Special Needs in the Elementary Classroom ¹	3
ELM 430	Teaching Language Arts in the Elementary School ¹	3
ELM 450	The Arts for Elementary Education ¹	3
Hours		15

Spring Semester

ELM 484	Student Teaching in Elementary Education ¹	9
ELM 480	Connections Seminar IV- Linking Theory and Practice ¹	3
Hours		12
Total Hours		120

¹ A grade of C or higher is required.

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