Addendum to the Undergraduate Catalog 2009-2010

Department of Mathematics and Computer Science

Bachelor of Science in Mathematics with a concentration in Applied Mathematics

Major Requirements	Credits
Total Credit Hours	**121.0**
Grade of C or higher in all major courses.	
University College Core Curriculum	**48.0**
Freshman Seminar/University Studies*	**2.0**
Select one option from the following: UNIV 101 And UNIV 102 Or UNIV 110	
Critical Thinking**	**3.0**
PHIL 110	
English Composition***	**6.0**
ENGL 110 And ENGL 120	
Speech	**3.0**
SPEE 200	
Mathematics******	**7.0**
MATH 131 And MATH 142	
Natural Sciences********	**10.0**
PHYS 121 And PHYS 122	
History and Social Sciences	**3.0**
Select one from the following: ANTH 210 Or CRJC 200 Or ECON 200 Or ECON 211 Or ECON 212 Or GEOG 210 Or GEOG 220 Or HIST 110 Or HIST 120 Or HIST 210 Or HIST 211 Or HIST 212 Or POLI 200 Or POLI 210 Or POLI 220 Or PSYC 210 Or SOCI 210 Or SWRK 220	
Humanities and Fine Arts	**3.0**
Select one from the following: ART 210 Or ART 211 Or ENGL 211 Or ENGL 212 Or ENGL 220 Or ENGL 223 Or ENGL 240 Or HUMN 211 Or HUMN 212 Or MUSI 210 Or MUSI 260 Or PHIL 210 Or PHIL 212 Or PHIL 220 Or THEA 203	
Physical Education/Health Education	**2.0**
Select HEED 112 Or two from the following: PEDU 101 to PEDU 141	
University College Restricted Electives	**9.0**
Select from: History and Social Sciences options above. Humanities and Fine Arts options above.	

6 credits of foreign language sequence.
3 credits of any 100- or 200-level class.

Notes

* UNIV 101-102 required for all first time students; UNIV 110 required for transfer students with fewer than 30 transfer credits.
** PHIL 110 not required for students with 60+ transfer credits.
*** ENGL 108 and additional credits in ENGL 110-120 may be required based on profile scores.
**** Additional mathematics courses and additional credits in MATH 121-123 may be required based on profile scores.
*****Students are not permitted to complete BIOL 110 and NSCI 120 to fulfill Natural Science requirements.

Program Requirements	**73.0**

Mathematics Courses **38.0**

MATH 150 And MATH 241 And MATH 242 And MATH 251 And MATH 260 And MATH 331 And MATH 361 And MATH 362 And MATH 372 And select three from the following: MATH 412 Or MATH 431 Or MATH 461 Or MATH 472 Or MATH 481 Or MATH 492

Other Course Requirements **14.0**

PHYS 211 And PHYS 212 And STAT 301 And STAT 302

Applied Mathematics Courses (Choose a) or b) or c)) **21**

a) CSC 310 And MATH 345 And MATH 350 And STAT 315 And Stat 415 And select two from the following: MATH 320 Or MATH 431 Or MATH 435 Or MATH 420 Or MATH 440 Or CSC 360 Or CSC 451 Or MATH 325 Or MATH 380 Or MATH 410 Or MATH 315 Or MATH 405 Or MATH 415

b) CSC 360 And CSC 451 And MATH 325 And MATH 380 And MATH 410 And select two from the following: CSC 310 Or MATH 345 Or MATH 350 Or STAT 315 Or STAT 415 Or MATH 320 Or MATH 431 Or MATH 435 Or MATH 420 Or MATH 440 Or MATH 315 Or MATH 405 Or MATH 415

c) MATH 320 And MATH 431 And MATH 435 And MATH 420 And MATH 440 And select two (or three*) from the following: CSC 310 Or MATH 345 Or MATH 350 Or STAT 315 Or STAT 415 Or CSC 360 Or CSC 451 Or MATH 325 Or MATH 380 Or MATH 410 Or MATH 315 Or MATH 405 Or MATH 415

*Student must take three courses from this list, if MATH 431 is used to satisfy the Mathematics Program Courses requirements (see Program Requirements).

Department of Mathematics and Computer Science

Corrected Course Descriptions

CSC 100 (3-3-0) Introduction to Computers: This course covers fundamental concepts of computers and their applications using micro/mini computers in stand-alone and networked environments, including the use of software for word processing, spreadsheets and databases. Majors in computer science will not receive credit for this course.

CSC 101 (3-3-0) Computer Programming Language (FORTRAN): This course is an introduction to FORTRAN, a problem-oriented computer language for use in scientific and mathematical problem solving.
Prerequisite: MATH 123 Or higher

CSC 102 (3-3-0) Introduction to Visual Basic: This course will introduce students to computing using Visual Basic with emphasis on business applications. The topics for the course will include Visual Basic programming, computer concepts in relation to management, the use of an Integrated Development Environment (IDE), flowcharts, algorithms, decision making, control structures, modules, windows programming, procedures and arrays.
Prerequisite: MATH 123 Or higher

CSC 201 (3-3-0) Computer Organization and Architecture I: This course covers the relationship between computing hardware and machine language instruction sets, implementation of high level languages on the machine and some memory related issues. The study is organized into levels in the following order of topics: fundamental building blocks such as logic gates and flip-flops and combinational and sequential logic; machine level representation of data; basic assembly language, implementation of high level language constructs, addressing modes, compilation, assembly and interpretation; memory hierarchy; interrupts. Some real world computer systems and microprocessors are used as examples, along with their hardware and the organization of their instruction sets. Assembly language programming is studied in detail.
Prerequisite: CSC 130

CSC 202 (3-3-0) Advanced Programming in C/C++: This course focuses on advanced programming and software development strategies in C/C++ programming language. Materials include syntax and semantics of C/C++ and Standard Template Libraries (STL), memory management, file processing, and network programming. Directed projects in C/C++ are an integral part of the course.
Prerequisite: CSC 130

CSC 207 (3-3-0) Symbolic Programming: This course introduces the basic concepts and methods of symbolic programming. Symbolic programming involves the construction and analysis of complex symbolic expressions that can be used to represent different types of information. This course also introduces functional programming and logic programming as two widely used paradigms for symbolic computation. Course topics include recursion, list processing, tree processing, backtracking, unification and resolution.
Prerequisite: CSC 130 And MATH 150

CSC 209 (3-3-0) Windowing Environment Programming: This course involves how to develop and program graphical user-interfaces (GUI) using current programming toolkits and GUI tools.
Prerequisite: CSC 130

CSC 300 (2-0-0) Professional Practice in Computing: This course requires preparation and submission of a comprehensive report based on actual employment experience in a computer-science cooperative job or internship. This course is designed for course substitution for Cooperative Education courses, and it may be used only twice for a maximum of six credits. It may not be used twice in the same semester.
Prerequisite: ***Admission to the cooperative education program and consent of the department.***

CSC 310 (3-3-0) Introduction to Numerical Method: This course focuses on computer techniques used to translate certain known computational algorithms into computer programs and on practice in use of existing mathematical library routines. Topics include linear systems of equations, curve fitting and interpolation algorithms for differentiation, solution of non-linear equations, solution of ordinary differential equations, and elementary discussion of errors.
Prerequisite: CSC 101 or higher And MATH 241 And MATH 251

CSC 350 (3-3-0) Service Learning (variable credit, 1 to 3 hours per semester): Under the supervision of the Computer Science faculty students will hold discussion sections for introductory computer science courses and will serve as tutors and assistants in the laboratories. Students will attend a weekly lecture section to become familiar with course materials, problem-solving skills, and approaches that will aid their tutoring and assisting introductory students in completing their assignments. One credit hour shall be awarded for each four (4) hours per week of laboratory assistance. The course may be repeated, up to a maximum of six (6) credit hours. Course grade is either pass (P) or notpass (NP).
Prerequisite: ***18 hours of CSC credit and permission of the department***

CSC 360 (3-3-0) Intro to Computer Simulation: This course introduces simulation and modeling of systems with concentration on discrete stochastic systems. Topics include modeling and simulation techniques, Monte Carlo methods, queuing models, and computer simulation languages such as GPSS, and SIMSCRIPT. A simulation project is developed, completed, and presented by each student as a member of a project team.
Prerequisite: Proficiency in a programming language and STAT 301

CSC 434 (3-3-0) Artificial Intelligence: An introduction to the history, goals, social impact, and philosophical implications of artificial intelligence. Topics include problem representation as state spaces, search, logic systems, semantic networks, frames, and neural networks. Identification of application areas such as natural language processing, expert systems, robotics, planning, and vision.
Prerequisite: CSC 220 And MATH 250 And CSC 207

CSC 451 (3-3-0) Computer Graphics

CSC 473 (3-3-0) Computer Architecture and Parallel Processing I

CSC 480 (3-3-0) User Interface Development: A course on user-interface technology and human-computer interaction issues including user productivity, system habitability, abstraction barriers, and human factors. Topics include command languages, hierarchical menus, direct manipulation (graphical user interfaces), multimedia interfaces, multimodal interaction, and user interface management systems.
Prerequisite: CSC 220 And CSC 451 (may be taken concurrently) Or CSC 470 (may be taken concurrently or consent of instructor

CSC 490 (3-3-0) Computer Science Capstone: This course reviews and puts into context the key components of the undergraduate computer science curriculum. The course content reflects national undergraduate computer science curriculum standards and national standardized exams that cover the undergraduate computer science curriculum. Topics include software systems and methodology, computer organization and architecture, theory and mathematical background, computer security and social issues.
Prerequisite: ***Senior status and 9 hours of CSC at 300 level and 9 hours of CSC at 400 level***

Department of Government and History

Minor in Intelligence Studies

Minor Requirements	Credits
Total Credit Hours	18.0

Core Courses

INTL 200 And INTL 210 And INTL 220

Electives

Select three from the following: INTL 300 Or INTL 310 Or INTL 320 Or INTL 330 Or INTL 400 Or INTL 410 Or INTL 420 Or INTL 430 Or INTL 440 Or INTL 450 Or INTL 460 Or INTL 462 Or INTL 470 Or INTL 480 Or INTL 490

Course Descriptions

Intelligence Studies

INTL 200 (3-3-0) Intelligence and National Security: This course focuses on the concept, framework and applications of U.S. Intelligence and its role in the creation and implementation of national security policies.

INTL 210 (3-3-0) Introduction to Intelligence Analysis: Research, Methods and Writing: This specialized course concentrates on the analytical production of strategic intelligence and serves as an introduction to the craft of intelligence analysis.

INTL 220 (3-3-0) Intelligence Operations: This course covers human Intelligence (HUMINT), covert action and counterintelligence, as well as, the organizations, missions, and functions of international intelligence and security services.

INTL 300 (3-3-0) Law Enforcement Intelligence: This course examines the role of Intelligence in the production of public policy and Law Enforcement implementation.

INTL 310 (3-3-0) Corporate Intelligence: This course combines the study of traditional "corporate espionage" with the intelligence and counter-intelligence requirements inherent in protecting and managing intellectual property and national security information found in the industrial sector.

INTL 320 (3-3-0) Intelligence and Military Operations: This course introduces the principles of Intelligence support for military operations including definitions and problems of strategic, operational and tactical intelligence; various aspects of military operations; and significant past, present and future events, operations and implications involving intelligence and military operations.

INTL 330 (3-3-0) The History of Intelligence: This course explores the principles of the history of Intelligence. Topics include definitions and problems of the history of Intelligence; various aspects of the history of Intelligence; and significant past, present and future events, operations and implications involving the history of Intelligence.

INTL 400 (3-3-0) Advanced Intelligence Analysis: Research, Methods and Writing: This advanced course serves as follow-on to the introductory analysis course and provides for the application of knowledge and further skill development of the analytical tradecraft. Special topics include analytical research, methodologies and writing.

INTL 410 (3-3-0) Ethics and Intelligence: This course will examine the pertinent role of ethics in the business of Intelligence within the context of national security. Ethical theories, the role of ethics, protection of individual civil rights, ethical dilemmas posed by several current challenges and ways to make ethics a larger part of the national security dialogue will be addressed.

INTL 420 (3-3-0) Anthropological Issues in Intelligence: This course investigates the historical and contemporary cultural, religious, and social distinctions between the world's peoples as these variables bear on the Intelligence function.

INTL 430 (3-3-0) Strategic Intelligence Issues: Exploring a number of vital and current issues relative to strategic Intelligence, this advanced course is intended to assess intelligence requirements and develop strategies for the successful use of intelligence in U.S. foreign and security policy in the first decades of the twenty-first century.

INTL 440 (3-3-0) Emerging International Security Threats: This course surveys a suite of emerging international threats which pose serious security risks to international development, stability and progress. The purpose is to assess the future international security environment in order to help develop government policy, strategy and plans for dealing with emerging security threats like genocide; organized crime; narcotics trade; human trafficking; weapons proliferation; environmental, energy, health and financial perils; regional issues; and other related topics.

INTL 450 (3-3-0) International Terrorism: This course focuses on a wide range of relevant topics from the historical background and roots to the sociological, economic, and psychological aspects of International Terrorism and to the actual operational factors and policy implications.

INTL 460 (3-3-0) U.S. National Security Policy: This course will focus on U.S. national security and related-policy and the domestic and global factors affecting implementation.

INTL 462 (3-3-0) International Weapons Proliferation and Weapons of Mass Destruction: This course explores worldwide proliferation of weapons and military hardware with special attention given to weapons of mass destruction.

INTL 470 (3-3-0) Internship: This course is designed for students to serve an external internship. As an intern, the students will be supervised in an experience in the application of principles and techniques to various areas of public service.

INTL 480 (3-3-0) Senior Seminar: This course serves as a capstone class for students completing the Intelligence Studies program. It requires students to integrate and apply knowledge gained from the overall program curriculum. As part of the Senior Seminar, the students will research, write and present the findings and results of a topic that has significance to the profession of Intelligence Studies.

INTL 490 (3-3-0) Advanced Readings and Research: This course allows students to conduct intensive, independent research studies of selected topics. The student will research, write and present the findings and results of the research.

Expenses

Tuition and fees are waived for individuals 65 years of age or older who show proper identification. The waiver is limited to credit courses. Enrollment under this waiver program is open only in scheduled courses and is based on space availability.

The North Carolina General Assembly eliminated the funding for Tuition Waivers for individuals over 65 years of age on July 1, 2009.

Department of Natural Science

Bachelor of Science in Biology

Major Requirements	Credits
Total Credit Hours	**123.0**
Grade of C or higher in all major courses.	
University College Core Curriculum	**45.0**
Freshman Seminar/University Studies*	**2.0**
Select one option from the following: UNIV 101 And UNIV 102 Or UNIV 110	
Critical Thinking**	**3.0**
PHIL 110	
English Composition***	**6.0**
ENGL 110 And ENGL 120	
Speech	**3.0**
SPEE 200	
Mathematics******	**6.0**
MATH 129 And MATH 130	
Natural Sciences********	**8.0**
BIOL 150 (BIOL 110 may be required) And ZOOL 110	
History and Social Sciences	**3.0**
Select one from the following: ANTH 210 Or CRJC 200 Or ECON 200 Or ECON 211 Or ECON 212 Or GEOG 210 Or GEOG 220 Or HIST 110 Or HIST 120 Or HIST 210 Or HIST 211 Or HIST 212 Or POLI 200 Or POLI 210 Or POLI 220 Or PSYC 210 Or SOCI 210 Or SWRK 220	
Humanities and Fine Arts	**3.0**
Select one from the following: ART 210 Or ART 211 Or ENGL 211 Or ENGL 212 Or ENGL 220 Or ENGL 223 Or ENGL 240 Or HUMN 211 Or HUMN 212 Or MUSI 210 Or MUSI 260 Or PHIL 210 Or PHIL 212 Or PHIL 220 Or THEA 203	
Physical Education/Health Education	**2.0**
Select HEED 112 Or two from the following: PEDU 101 to PEDU 141	

University College Restricted Electives	**9.0**

Select from:
History and Social Sciences options above.
Humanities and Fine Arts options above.
6 credits of foreign language sequence.
3 credits of any 100- or 200-level class.

Notes

* UNIV 101-102 required for all first time students; UNIV 110 required for transfer students with fewer than 30 transfer credits.
** PHIL 110 not required for students with 60+ transfer credits.
*** ENGL 108 and additional credits in ENGL 110-120 may be required based on profile scores.
**** Additional mathematics courses and additional credits in MATH 121-123 may be required based on profile scores.
*****Students are not permitted to complete BIOL 110 and NSCI 120 to fulfill Natural Science requirements.

Program Requirements	**78.0**
Required Science Courses	**37.0**

BIOL 150 And BIOL 200 And BIOL 320 And BIOL 330 And BIOL 350 And BIOL 430 And BOTN 210 And ZOOL 110 And ZOOL 350 And ZOOL 370 And ZOOL 410 And ZOOL 430

Correlative Requirements	**16.0**

CHEM 140 And CHEM 160 And PHYS 111 And PHYS 112 And 6 hours foreign language sequence

Other Requirements	**22.0**

Select from the following: BIOL 225 Or BIOL 325 Or BIOL 431 Or BIOL 490 or BICH 411 Or BTCH 220 Or BTCH 230 Or BTCH 310 Or BTCH 340 Or BTCH 350 Or BTCH 360 Or BTCH 410 Or BTCH 435 Or BTCH 440 Or CHEM 210 Or CHEM 220 Or CHEM 221 Or CHEM 222 Or CSC 100 Or GEOL 311 Or GEOL 312 Or MATH 142 Or MEDI 200 Or PHYS 113 Or PHYS 123 Or PHYS 302 Or STAT 202 Or ZOOL 210 Or ZOOL 230 Or ZOOL 450 Or ZOOL 470 Or ZOOL 485

Electives	**3.0**

Bachelor of Science in Biology - Secondary Education

Major Requirements	**Credits**
Total Credit Hours	**122.0**

Student must fulfill all requirements for admission to Teacher Education. Grade of C or higher in all education and major courses.

University College Core Curriculum	**45.0**
Freshman Seminar/University Studies*	**2.0**
Select one option from the following: UNIV 101 And UNIV 102 Or UNIV 110	
Critical Thinking**	**3.0**
PHIL 110	
English Composition***	**6.0**
ENGL 110 And ENGL 120	
Speech	**3.0**
SPEE 200	
Mathematics******	**6.0**
MATH 129 And MATH 130	
Natural Sciences*******	**8.0**
BIOL 150 (BIOL 110 may be required) And ZOOL 110	
History and Social Sciences	**3.0**
Select one from the following: ANTH 210 Or CRJC 200 Or ECON 200 Or ECON 211 Or ECON 212 Or GEOG 210 Or GEOG 220 Or HIST 110 Or HIST 120 Or HIST 210 Or HIST 211 Or HIST 212 Or POLI 200 Or POLI 210 Or POLI 220 Or PSYC 210 Or SOCI 210 Or SWRK 220	
Humanities and Fine Arts	**3.0**
Select one from the following: ART 210 Or ART 211 Or ENGL 211 Or ENGL 212 Or ENGL 220 Or ENGL 223 Or ENGL 240 Or HUMN 211 Or HUMN 212 Or MUSI 210 Or MUSI 260 Or PHIL 210 Or PHIL 212 Or PHIL 220 Or THEA 203	
Physical Education/Health Education	**2.0**
Select HEED 112 Or two from the following: PEDU 101 to PEDU 141	
University College Restricted Electives	**9.0**
Select from: History and Social Sciences options above. Humanities and Fine Arts options above. 6 credits of foreign language sequence. 3 credits of any 100- or 200-level class.	

Notes

* UNIV 101-102 required for all first time students; UNIV 110 required for transfer students with fewer than 30 transfer credits.

** PHIL 110 not required for students with 60+ transfer credits.

*** ENGL 108 and additional credits in ENGL 110-120 may be required based on profile scores.
**** Additional mathematics courses and additional credits in MATH 121-123 may be required based on profile scores.
*****Students are not permitted to complete BIOL 110 and NSCI 120 to fulfill Natural Science requirements.

Program Requirements	**77.0**
Required Science Courses	**29.0**
BIOL 150 And BIOL 200 And BIOL 320 And BIOL 330 And BIOL 350 And BICH 411 And BOTN 210 And ZOOL 110 And ZOOL 370 And ZOOL 410 And ZOOL 430 And GEOL 311 OR GEOL 312	
Correlative Requirements	**16.0**
CHEM 140 And CHEM 160 And PHYS 111 And CHEM 220 Or CHEM 221	
Professional Education Courses	**32.0**
EDUC 210 And EDUC 211 And EDUC 310 And EDUC 330 And EDUC 340 And EDUC 421 And EDUC 450 And EDUC 460 And EDUC 480 And EDUC 490 And READ 320	

Department of Elementary Education

Bachelor of Science in Birth to Kindergarten (Teaching)

Major Requirements	**Credits**
Total Credit Hours	**125.0**
Grade of C or higher in all education courses, including Teacher Internship.	
University College Core Curriculum	**46.0**
Freshman Seminar/University Studies*	**2.0**
Select one option from the following: UNIV 101 And UNIV 102 Or UNIV 110	
Critical Thinking**	**3.0**
PHIL 110	
English Composition***	**6.0**
ENGL 110 And ENGL 120	
Speech	**3.0**
SPEE 200	
Mathematics******	**6.0**
MATH 121 Or MATH 123 Or MATH 124 Or MATH 129 Or MATH 130 Or MATH 131 Or MATH 140 Or MATH 142 Or MATH 150	
Natural Sciences*******	**8.0**
NSCI 110 And NSCI 120	

History and Social Sciences	**3.0**
Choose one: HIST 211 Or HIST 212 Complete HIST 211 And HUMN 212; Or HIST 212 and HUMN 211	
Humanities and Fine Arts	**3.0**
Choose one: HUMN 211 Or HUMN 212 Complete HUMN 211 and HIST 212; Or HUMN 212 and HIST 211.	
Physical Education/Health Education	**3.0**
HEED 112 And one of the following: PEDU 101 to PEDU 141	
University College Restricted Electives	**9.0**

HIST 110 And
POLI 210 And
PSYC 210

Notes

* UNIV 101-102 required for all first time students; UNIV 110 required for transfer students with fewer than 30 transfer credits.
** PHIL 110 not required for students with 60+ transfer credits.
*** ENGL 108 and additional credits in ENGL 110-120 may be required based on profile scores.
**** Additional mathematics courses and additional credits in MATH 121-123 may be required based on profile scores.
*****Students are not permitted to complete BIOL 110 and NSCI 120 to fulfill Natural Science requirements.

Program Requirements	**79.0**
Professional Education Courses	**34.0**
EDUC 210 And EDUC 211 And EDUC 310 And EDUC 311 And EDUC 330 And EDUC 340 And SPED 320 And ELEM 471 And EDUC 491	
Birth through Kindergarten Major Core	**45.0**
EDUC 307 And EDUC 308 And EDUC 309 And EDUC 314 And EDUC 350 And EDUC 361 And EDUC 419 And EDUC 426 And HEED 372 And HEED 420 And READ 370 And SOCI 330 And SWRK 220 And SWRK 330	

Academic Regulations

Transcript Request Policy

Students may request a transcript using their online student information account for same day service. Requests submitted by mail or in person will be processed within five (5) to ten (10) working days of receipt of the request and fee. For more details, visit the Office of the Registrar's website . During peak periods, such as registration, commencement, and grading periods for midterm and final examinations, the processing period for all requests is five (5) to ten (10) working days.

Students who request transcripts using the online student information system will not be charged a transcript fee. Students who request transcripts using the fax or walk-in method will be charged $5 per transcript. Transcripts are released only when the student's account is paid in full and loan payments are current. Requests for transcripts should be mailed to:

Office of the Registrar
Fayetteville State University
1200 Murchison Road
Fayetteville, NC 28301-4298
Phone: 910-672-1185