University Curriculum Committee (UCC)  
Meeting Minutes of Thursday March 24, 2016  
2:00 pm, Brewster B-104

Regular Members Present:
Mark Johnson  
Mark Richardson  
Karen Vail-Smith  
Lori Flint, Chair  
Gail Ratcliff

Regular Members Excused:
Jean-Luc Scemama  
Michael Dingfelder  
David Batts

Ex-Officio Members Present:
Josie Bowman  
Rita Reaves  
Patrick Rider  
Nancy Winterbauer

Ex-Officio Members Excused:
Chase Crawford, SGA representative  
Christine Zoller

IPAR Office of Academic Program Planning and Development (OAPPD):
Patricia Gregory

Office of the Registrar:
Diane Coltraine

I. Call to Order by Dr. Flint

The 2-11-2016, 2-18-2016 and 2-25-2011 UCC minutes have been reviewed, approved and distributed.

II. College of Engineering and Technology (from 2/18/16)
Department of Computer Science  
(Venkat Gudivada, Leslie Pagliari)

1. Proposal of New Courses
   CSCI 1000: Improved from before, justification looks good.  
   CSCI 1003: Objectives clear  
   CSCI 2400: Suggested edit to objective 3 related to word: simple  
   CSCI 2405: Suggested edit to course description made and agreed upon by presenter.  
   CSCI 4110: Course proposal looks good. No comments.
2. Revision of Existing Courses: Renumber –
   - CSCI 2310 to CSCI 1010: Justification strong and discussed attrition
   - CSCI 2311 to CSCI 1011: Course proposal looks good no comments
   - CSCI 3300 to CSCI 2530: Course proposal looks good no comments.
   - CSCI 3310 to CSCI 2540: Minor edits to course description.
   - CSCI 4630 to CSCI 3000: Renumbered course. No comments.
   - CSCI 4530 to CSCI 3010: Renumbered course. No comments
   - CSCI 4200 to CSCI 3030: Suggested edit to #8. Explanation of course revision or renumbering section.

3. Title Changes –
   - CSCI 3650: One suggested edit to the topical outline
   - CSCI 4602: Suggested edit to course description and similar edit needed in course description.
   - CSCI 4540: Course proposal reviewed. No suggestions.
   - CSCI 4710: Course proposal reviewed and no suggested edits.

4. Title Change and SH –
   - CSCI 4230: Suggested edits to course objectives.

5. Deletion of Existing Courses: CSCI 1001, 1002, 1200, 2300, 2600, 2618, 3040, 3573, 3601, 4000, 4510

6. Revisions of Existing Degree: BS in Computer Science change from 126 SH to 120 SH
   - Core
   - Cognates

Discussion: General discussion included above. Make sure that the changes made in the course description are included in the catalog pages.
Action: Approved as amended
III. Thomas Harriot College of Arts and Sciences
Department of Mathematics
(Gail Ratcliff)

1. Revision of Existing Course Prerequisites: MATH 2228, MATH 2283
   Current: MATH 1065
   Proposed new prerequisites: MATH 1050 or MATH 1065 or MATH 1066

   Discussion: No recommendations.
   Action: Approved

IV. College of Education
Department of Mathematics, Science, and Instructional Technology Education
Science Education
(Ron Preston)

1. Proposal of New Course: SCIE 3606
2. Revision of an Existing Course: SCIE 3602
3. Revision of Existing Concentrations: BS Science Education Concentrations: Biology, Chemistry, Earth Science, and Physics; General Science Concentration

   Discussion: Revised memo dated 3/22/2016 available for review. No recommendations for new course and revision of course and concentrations.
   Action: Approved as amended.

V. Thomas Harriot College of Arts and Sciences
African America Studies program (AAAS)
(Kennetta Perry, David Dennard)

a. Revision to Existing Degree: African and African American Studies, BA
b. Reduce degree hours from 126 to 120
c. Reduce core hours from 21 to 9
d. Increase required concentration hours to 21 for the major and 12 for the minor
e. Remove ENGL 3260, HIST 3810; POLS 3039 and POLS 3265 as core course requirements
f. Add AAAS 2500 as a core requirement for the major and the minor
g. Remove mention of electives from the major and minor
h. List required courses for the minor: AAAS 1000 and AAAS 2500
i. Redistribute elective hours to concentrations
j. Add that minor students may select any combination of courses from major concentrations to fulfill the remaining 12 hours for the minor
k. Proposal of New Course: AAAS 2500:
l. Revision of Existing Course: AAAS 1000: adding Domestic Diversity designation
m. Addition of New Concentration: Caribbean, Latin America and the Diaspora

   Discussion: Memo well written and plan clearly outlined. New course proposal AAAS 2500 reviewed with good justification.
   Action: Approve

VI. Adjourned at 4:30
Minutes submitted by J. Bowman/Gail Ratcliff
## Curricular Actions Reviewed 3-24-2016 UCC

<table>
<thead>
<tr>
<th>Action</th>
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### CSCI 1000 - Explorations in Computing

3

2 lecture and 2 lab hours per week. P/C: MATH 1065; C: CSCI 1003. Central principles of problem-solving and programming on a computer in a high-level programming language. Testing programs by hand and on a computer. Common classes of algorithms and how to write them.

### CSCI 1001 - Introduction to Computer Science

3

May not count towards a BA or BS degree in computer science, or towards foundations curriculum credit. Elementary treatment of some basic ideas in computer science, such as how computers store and process data, binary and hexadecimal numbers, arithmetic/logic instructions, social issues, data structures, web pages, and the Internet. Targeted towards novice computer users.
CSCI 1002 – Web Page Programming

3

May not count toward CSCI major or minor. Introduction to the enhancement of web pages using programming techniques. Provides supervised practical experience in the use of an embedded programming language. A portable computer is required.

CSCI 1003 - Explorations in Computing Lab

0

2 lecture and 2 lab hours per week. C: CSCI 1000. Implementing and testing basic algorithms using a high-level programming language.

CSCI 1010 - Algorithmic Problem Solving

4 Formerly CSCI 2310

3 lecture and 2 lab hours per week. P: Appropriate score on math section of the SAT/ACT or MATH 1065 or CSCI 1000; C: CSCI 1011. Design of algorithms and their implementation as programs in a high-level programming language such as Java.

CSCI 1011 - Algorithmic Problem Solving Lab

0 Formerly CSCI 2311

3 lecture and 2 lab hours per week. C: CSCI 1010. Design, implement, and test fundamental algorithms using a high-level programming language such as Java.

CSCI 1200 – Introduction to Visual Programming

3

May not count toward CSCI major or minor. P: MATH 1065. Introduces programming using a visual design tool such as Visual Basic.

CSCI 2300 – Computer Science Survey

3

Elementary architecture, operating systems, file systems, network, algorithmic, and software development concepts.
CSCI 2310 – Algorithmic Problem Solving and Programming

4

P: MATH 1065; C: CSCI 2311. Design of algorithms and their implementation as programs in high-level language such as Java.

CSCI 2311 – Algorithmic Problem Solving and Programming Laboratory

0

P: MATH 1065; C: CSCI 2310. Design of algorithms and their implementation as programs in high-level language such as Java.

CSCI 2400 - Discrete Structures I

3

P: MATH 1065. Application of basic concepts in discrete mathematics to solving problems in the computing discipline.

CSCI 2405 - Discrete Structures II

3

P: CSCI 2400. Continuation of CSCI 2400. Application of advanced concepts in discrete mathematics to solve computational problems.

CSCI 2427 – Discrete Mathematical Structures

3 Same as MATH 2427.

May not count toward MATH major or minor. May receive credit for only one of CSCI 2427; MATE or MATH 2775, MATH 3237, or MATH 2427. P: MATH 1065 or MATH 1066. Study of discrete mathematical structures. Special emphasis on structures most important in computer science. Practical applications of subject emphasized.

CSCI 2530 - Algorithms and Data Structures

4 Formerly CSCI 3300

P: CSCI 1010; P/C: CSCI 2400. Computational problem solving using fundamental algorithms and physical data structures. Design and analysis of algorithms that operate on these data structures.

CSCI 2540 - Data Abstraction and Object-Oriented Data Structures
3 Formerly CSCI 3310

P: CSCI 2530; P/C: CSCI 2405. Data abstractions including stacks, queues, graphs, tables, sets and domain-specific data abstractions. Implementations of data abstractions in object-oriented style and principles of class design.

CSCI 2600 - Introduction to Digital Computation

3

May not count toward CSCI major or minor. P: MATH 1065 or MATH 1066. Emphasis on algorithmic approach to problem solving. Algorithms programmed and run on computer by all students.

CSCI 2618 - COBOL

3

P: CSCI 2310 or CSCI 2610. Basic and advanced elements of COBOL.

CSCI 3000 - Operating Systems

3 Formerly CSCI 4630

P: CSCI 2405, CSCI 2530. Operating system design and implementation. Process and memory management, and file systems. Operating system support for distributed systems.

CSCI 3010 - Computer Networks

3 Formerly CSCI 4530

P: CSCI 2530. Design and analysis of computer communication networks. Topics include application layer protocols, Internet protocols, network interfaces, local and wide area networks, wireless networks, bridging and routing.

CSCI 3030 - Software Engineering I

3 Formerly CSCI 4200

P: CSCI 2540. Software engineering principles, development methodologies and tools for developing large and complex software systems.

CSCI 3040 - Microprocessors

4 Same as EENG 3040.

3 lecture and 2 lab hours per week. P: ENGR 2514, EENG 2410 or CSCI 2410; or consent of instructor.
Microprocessor architecture and programming, register level logic, input and output, system logic, timing, embedded systems applications, and hardware interfacing.

**CSCI 3300 - Introduction to Algorithms and Data Structures**

**4**

P: CSCI 2310. C: CSCI 2427. Advanced data representations such as lists and trees, including associated algorithms and use of both static and dynamic memory.

**CSCI 3310 - Advanced Data Structures and Data Abstraction**

**3**

P: CSCI 2427, CSCI 3300. Data abstractions such as stacks, queues, graphs, tables, and sets, and implementations in object-oriented style, including principles of class design.

**CSCI 3573 - Introduction to Numerical Analysis**

**3** Same as MATH 3573.

P: CSCI 2310 or consent of instructor; MATH 2119 or MATH 2172 or equivalent. Algorithms suitable for digital computation in areas of linear algebra, linear programming, slope finding, area finding, and nonlinear equation solution.

**CSCI 3601 - Computer Organization and Programming**

**3**

P: CSCI 2410 or CSCI 3200, CSCI 3300. Assembly language used to illustrate general machine architecture that executes assembly language command structure.

**CSCI 3650 - Design and Analysis of Algorithms**

**3**

P: CSCI 2530, 3200 or CSCI 3300; CSCI 2427. Decision trees, mathematical induction, and adversary arguments used to analyze correctness, complexity, and optimality of algorithms. Emphasis on searching and sorting algorithms. Formal techniques to support the design and analysis of algorithms. Asymptotic complexity bounds, techniques of analysis, and algorithmic strategies.

**CSCI 4000 - Ethical and Professional Issues in Computer Science**

**1**
To be taken by CSCI seniors in final semester. Departmental assessment and professional, ethical, legal, security, and social issues and responsibilities related to the practice of computer science.

**CSCI 4110 - High Performance Computing**

3

P: CSCI 3000, CSCI 3675. Software design and development targeting high performance computing architectures. Multi-core and many-core systems. MPI, OpenMP, MapReduce, CUDA, and OpenCL computing models.

**CSCI 4120 - Machine Learning**

3

P: CSCI 2540; MATH 2228 or MATH 2283. Machine learning and statistical pattern recognition algorithms and their application to data analytics, bioinformatics, speech recognition, natural language processing, robotic control, autonomous navigation, and text and web data processing.

**CSCI 4130 - Information Retrieval**

3

P: CSCI 2540; MATH 2228 or MATH 2283. Theory and algorithms for modeling and retrieving text. Text representation, IR models, query operations, retrieval evaluation, information extraction, text classification and clustering, enterprise and Web search, and recommender systems.

**CSCI 4140 - Natural Language Processing**

3

P: CSCI 2540; MATH 2228 or MATH 2283. Fundamental algorithms and computational models for core tasks in natural language processing. Word and sentence tokenization, parsing, information and meaning extraction, spelling correction, text summarization, question answering, and sentiment analysis.

**CSCI 4150 - Digital Image Processing**

3

P: CSCI 2540; MATH 2228 or MATH 2283. Mathematical techniques and algorithms for image sampling, quantization, intensity transformations, spatial filtering, Fourier transforms, frequency domain filtering, restoration and reconstruction, morphological image processing, and segmentation.
CSCI 4160 - Cybersecurity: Theory and Practice

3


CSCI 4170 - Cloud Computing

3

P: CSCI 3000, CSCI 3010. Cloud computing as a cost effective platform for developing and deploying highly available and scalable applications. Theory, application frameworks, and tools of cloud computing.

CSCI 4180 - Big Data Analytics

3

P: CSCI 3700. Hands-on introduction to very big data and the practical issues surrounding how the data is stored, processed, analyzed, and visualized. Work with cloud-based high performance computing systems, large data collections, and high velocity data streams.

CSCI 4200 - Software Engineering I

3 WI

P: CSCI major and CSCI 3200 or CSCI 3310. Formal approach to state-of-the-art techniques in software design and development and application of the techniques.

CSCI 4230 - Software Engineering II

3 4

4 practicum and 2 lab hours per week. P: CSCI 3030, CSCI 3700 4200 or consent of the instructor; C: CSCI 4231. Conceptual and practical knowledge in relation to large scale software development using established software engineering principles. Requires completion of major project using tools and methodologies provided. Application of technical and professional skills in solving a real-world problem in a team environment. Professional code of conduct, societal issues, copyrights and patents, intellectual capital, entrepreneurship, and transition from student to an industry professional in the context of software engineering.

CSCI 4231 - Software Engineering II Lab

0
4 practicum and 2 lab hours per week. C: CSCI 4230. Developing fully functional computing applications which solve practical problems.

**CSCI 4510 – Object-Oriented Computing and Graphical User Interfaces**

3

P: CSCI 3200 or CSCI 3510. Object-oriented program design and development and data abstraction. Object-oriented programming languages. Applications to graphical user interfaces and event-driven computing.

**CSCI 4530 – Computer Networks and the Internet**

3

P: CSCI 3200 or CSCI 3300 or consent of instructor. Theory and case studies of modern networking protocols and telecommunication methods. Local area and long-haul networks.

**CSCI 4540 - Introduction to Mobile Communications and Wireless Security Mobile Computing**

3 OY

P: CSCI 3010, 4530 or consent of instructor. Signals, access protocols, application requirements and security issues. Focus is on digital data transfer. Mobile computing and mobile application development. Mobile computing applications, technologies and wireless communication. Computing in environments with limited resources and low power, fault tolerance, and persistence. Mobile application frameworks and development environments. User interface design and evaluating user experience.

**CSCI 4602 - Theory of Automata and Linguistics Formal Languages**

3

P: CSCI major; CSCI 2427, 2405, CSCI 2530. Basic concepts of automata theory and mathematical linguistics and their close interrelationship. Fundamental concepts in automata theory and formal languages including grammars, finite automata, regular expressions, formal languages, pushdown automata, and Turing machines.

**CSCI 4630 – Operating Systems I**

3

P: CSCI major and CSCI 3200 or CSCI 3300. Job control and operating systems. System organization, resource and storage allocation, interrupt handling, addressing techniques, file structures, and batch/time sharing systems.
CSCI 4710 - Introduction to Developing e-Business Systems: Web Applications

3 WI SEY

P: CSCI 3700, 3310 or CSCI 3200 or consent of instructor. Integration of several technologies including markup languages, scripting languages, network protocols, interactive graphics, event-driven programming, and databases in enabling Web applications development. Introduces use of concepts, technologies, and building blocks from computer science, practical software engineering, and business development in building e-Commerce systems. Describes systematic life-cycle approach to developing successful e-Commerce systems and presents knowledge essential to wide range of organization and software developers. Requires completion of major term projects using state-of-the-art tools and methodologies.

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Courses

Computer Science

- CSCI 1000 - Explorations in Computing
- CSCI 1001 - Introduction to Computer Science
- CSCI 1002 - Web Page Programming
- CSCI 1003 - Explorations in Computing Lab
- CSCI 1010 - Algorithmic Problem Solving
- CSCI 1011 - Algorithmic Problem Solving Lab
- CSCI 1200 - Introduction to Visual Programming
- CSCI 2300 - Computer Science Survey
- CSCI 2310 - Algorithmic Problem Solving and Programming
- CSCI 2311 - Algorithmic Problem Solving and Programming Laboratory
- CSCI 2400 - Discrete Structures I
- CSCI 2405 - Discrete Structures II
- CSCI 2410 - Digital Electronics
- CSCI 2427 - Discrete Mathematical Structures
- CSCI 2530 - Algorithms and Data Structures
- CSCI 2540 - Data Abstraction and Object-Oriented Data Structures
- CSCI 2600 - Introduction to Digital Computation
- CSCI 2618 - COBOL
- CSCI 3000 - Operating Systems
- CSCI 3010 - Computer Networks
- CSCI 3030 - Software Engineering I
- CSCI 3040 - Microprocessors
- CSCI 3200 - Data Structures and Their Applications
- CSCI 3300 - Introduction to Algorithms and Data Structures
- CSCI 3310 - Advanced Data Structures and Data Abstraction
- CSCI 3550 - Introduction to Computer Game Development
- CSCI 3573 - Introduction to Numerical Analysis
- CSCI 3584 - Computational Linear Algebra
- CSCI 3601 - Computer Organization and Programming
- CSCI 3650 - Design and Analysis of Algorithms
- CSCI 3675 - Organization of Programming Language
- CSCI 3700 - Database Management Systems
- CSCI 3800 - Introduction to Computer Graphics
- CSCI 4000 - Ethical and Professional Issues in Computer Science
- CSCI 4110 - High Performance Computing
- CSCI 4120 - Machine Learning
- CSCI 4130 - Information Retrieval
- CSCI 4140 - Natural Language Processing
- CSCI 4150 - Digital Image Processing
- CSCI 4160 - Cybersecurity: Theory and Practice
- CSCI 4170 - Cloud Computing
- CSCI 4180 - Big Data Analytics
- CSCI 4200 - Software Engineering I
- CSCI 4230 - Software Engineering II
- CSCI 4231 - Software Engineering II Lab
- CSCI 4300 - Systems Programming
- CSCI 4510 - Object-Oriented Computing and Graphical User Interfaces
- CSCI 4520 - Introduction to Computer Architecture
- CSCI 4530 - Computer Networks and the Internet
- CSCI 4540 - Introduction to Mobile Communications and Wireless Security Mobile Computing
- CSCI 4550 - Computer Game Development
- CSCI 4602 - Theory of Automata and Linguistics Formal Languages
- CSCI 4627 - Procedural Languages and Compilers
- CSCI 4630 - Operating Systems I
- CSCI 4710 - Introduction to Developing e-Business Systems Web Applications
- CSCI 4905 - Selected Topics in Computer Science
- CSCI 5002 - Logic for Mathematics and Computer Science
- CSCI 5210 - Operating Systems II
- CSCI 5220 - Program Translation
- CSCI 5501 - Independent Study
- CSCI 5502 - Independent Study
- CSCI 5503 - Independent Study
- CSCI 5774 - Programming for Research
- CSCI 5800 - Artificial Intelligence

**Computer Science Banked Courses**

- CSCI 1610 - Elementary Pascal
- CSCI 2901 - Programming in ADA
- CSCI 2902 - Programming in C
- CSCI 2903 - Programming in FORTRAN


**Computer Science, BS**
Credit toward a computer science major will not be given for any CSCI course with a grade less than C being used to satisfy the requirements specified in the common core and CSCI electives. Minimum degree requirement is 126 s.h. of credit as follows:

1. **Foundations curriculum including those listed below - 42 s.h.**

(For information about courses that carry foundations curriculum credit see Liberal Arts Foundations Curriculum)

See cognates below in section 3 for courses that fulfill science requirements. 8 s.h. of the science cognates may count toward foundation curriculum requirements.

- COMM 2020 - Fundamentals of Speech Communication or
- COMM 2410 - Public Speaking
- PHIL 2275 - Professional Ethics

2. **Common core - 36 48 s.h.**

- CSCI 2310 1010 - Algorithmic Problem Solving and Programming
- CSCI 2311 1011 - Algorithmic Problem Solving and Programming Laboratory
- CSCI 2400 - Discrete Structures I
- CSCI 2405 - Discrete Structures II
- CSCI 2410 - Digital Electronics or
  - EENG 2410 - Digital Electronics
- CSCI 2530 - Algorithms and Data Structures
- CSCI 2540 - Data Abstraction and Object-Oriented Data Structures
- CSCI 3000 - Operating Systems
- CSCI 3010 - Computer Networks
- CSCI 3030 - Software Engineering I
- CSCI 3300 - Introduction to Algorithms and Data Structures
- CSCI 3310 - Advanced Data Structures and Data Abstraction
- CSCI 3650 - Analysis of Algorithms
- CSCI 3584 - Computational Linear Algebra
- CSCI 3650 - Design and Analysis of Algorithms
- CSCI 3675 - Organization of Programming Languages
- CSCI 3700 - Database Management Systems
- CSCI 4000 - Ethical and Professional Issues in Computer Science
- CSCI 4200 - Software Engineering I
- CSCI 4230 - Software Engineering II
- CSCI 4231 - Software Engineering II Lab
- CSCI 4602 - Theory of Automata and Linguistics-Formal Languages
3. Cognates - 25-27-18 s.h.

Math cognates – 6 s.h.

- CSCI 2427 – Discrete Mathematical Structures or MATH 2427 – Discrete Mathematical Structures
- CSCI 3584 – Computational Linear Algebra or MATH 3584 – Computational Linear Algebra
- ENGL 3880 – Writing for Business and Industry or ITEC 3290 – Technical Writing
- MATH 2171 – Calculus I or MATH 2121 - Calculus for the Life Sciences I or MATH 2171 - Calculus I
- MATH 2172 – Calculus II or MATH 2122 – Calculus for the Life Sciences II
- MATH 2228 - Elementary Statistical Methods I or MATH 2283 - Statistics for Business or MATH 3307 – Mathematical Statistics I
- MATH 3229 – Elementary Statistical Methods II or MATH 3308 – Mathematical Statistics II or CSCI 5774 – Programming for Research

- 12 s.h. of science. (Note that 8 of these 12 units count toward foundation curriculum requirements.)

Science cognates – 12 s.h.
(One of the following options must be selected.)

Option 1 - Physics:

- PHYS 1251 - General Physics Laboratory
- PHYS 1261 - General Physics Laboratory
- PHYS 2350 - University Physics
- PHYS 2360 - University Physics
- 2 s.h. of science that satisfy ECU foundation requirements.

Option 2 - Chemistry:

- CHEM 1150 - General Chemistry I
- CHEM 1151 - General Chemistry Laboratory I
- CHEM 1160 - General Chemistry II
- CHEM 1161 - General Chemistry Laboratory II
- 4 s.h. of science that satisfy ECU foundation requirements.

Option 3 - Biology

- BIOL 1100 - Principles of Biology I
- BIOL 1101 - Principles of Biology Laboratory I
- BIOL 1200 - Principles of Biology II
- BIOL 1201 - Principles of Biology Laboratory II
- 4 s.h. of science that satisfy ECU foundation requirements curriculum requirements.

4. CSCI electives above 2999 - 9 15 s.h.

(excluding CSCI 3200 and CSCI 5774)

5. Electives to complete requirements for graduation - 5 s.h.

*Requirements for 5 above, may be met by satisfying the requirements for a minor.

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MATH 2228 - Elementary Statistical Methods I

3 F, S, SS FC: MA

For students with limited mathematical training. May not count toward MATH major or minor. May receive credit for one of MATH 2228, MATH 2283. P: MATH 1050; MATH 1065 or MATH 1066
equivalent. Collection, systematic organization, analysis and interpretation of numerical data obtained in measuring certain traits of a given population.

MATH 2283 - Statistics for Business

3 F, S, SS FC: MA

May receive credit for one of MATH 2228, 2283. P: MATH 1050, MATH 1065 or MATH 1066 equivalent. Sampling and probability distributions, measures of central tendency and dispersion, hypothesis testing, Chi-square, and regression.

Sampling and probability distributions, measures of central tendency and dispersion, hypothesis testing, Chi-square, and regression.

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SCIE 3602 - Investigations in Physical and Earth Science

4 F, S, SS

Two 2-hour lectures/labs per week. Series of selected topics and investigations in the physical and earth sciences. Science concepts treated in depth and in relationship to state and national science education standards. Emphasis on role of investigative approach.

SCIE 3606 - Investigations in Earth and Space Science

4

Selected topics and investigations in Earth and space sciences. Science concepts treated in depth and in relationship to state and national science education standards. Emphasis on role of investigative approach.

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Science Education

SCIE 2123 - Early Experiences for the Prospective Teacher
SCIE 3100 - Creativity and Inventiveness in Science
SCIE 3216 - Teaching Science in the Elementary School
SCIE 3270 - Physical Science for Grades K-6
SCIE 3280 - Life and Environmental Science Grades K-6
SCIE 3290 - Earth Systems Science Grades K-6
SCIE 3323 - Introduction to Teaching in the High School Science Classroom
SCIE 3336 - Science and Methods in Informal Settings and Field Experience
SCIE 3350 - Descriptive Astronomy
SCIE 3351 - Descriptive Astronomy
SCIE 3360 - Physical Meteorology
SCIE 3361 - Physical Meteorology
SCIE 3602 - Investigations in Physical and Earth Science
SCIE 3604 - Investigations in Life and Environmental Science
**SCIE 3606 - Investigations in Earth and Space Science**
SCIE 4030 - Technology in Science Teaching
SCIE 4319 - Teaching Science in the Middle Grades
SCIE 4323 - The Teaching of Science in High School
SCIE 4324 - Internship in Science Education
SCIE 4325 - Internship Seminar: Issues in Science Education
SCIE 5000 - Contemporary Approaches to Teaching Biological Science
SCIE 5010 - Applications of Microcomputers in Teaching Physical Science
The science education degree prepares and develops professionals in science education by offering classroom instruction and research opportunities in programs for students whose career goals are teaching science in the elementary, middle, and secondary schools, and in higher education. Undergraduate areas of preparation include the methods and processes of teaching the biological, physical, and earth sciences. Minimum degree requirement is 128 s.h. of credit as follows:
1. Foundations curriculum and special requirements for certification including those listed below - 42 s.h.

(For information about courses that carry foundations curriculum credit see *Liberal Arts Foundations Curriculum*)

- BIOL 1100 - Principles of Biology I
- BIOL 1101 - Principles of Biology Laboratory I
- GEOL 1500 - Dynamic Earth
- GEOL 1501 - Dynamic Earth Laboratory
- MATH 1065 - College Algebra
- PSYC 1000 - Introductory Psychology
- Council for Teacher Education Approved Diversity Course
- Choose a literature course (FC:HU)

2. Teaching area concentration – 54-55 s.h.

(Choose one from the following.)

**Biology (54-55 s.h.)**

- BIOL 1200 - Principles of Biology II
- BIOL 1201 - Principles of Biology Laboratory II
- BIOL 2100 - Basic Laboratory Methods for Biotechnology
- BIOL 2101 - Basic Laboratory Methods for Biotechnology Laboratory
- BIOL 2110 - Fundamentals of Microbiology
- BIOL 2111 - Fundamentals of Microbiology Laboratory
- BIOL 2130 - Survey of Human Physiology and Anatomy
- BIOL 2131 - Survey of Human Physiology and Anatomy Laboratory
  or
- BIOL 4050 - Comparative Anatomy
- BIOL 4051 - Comparative Anatomy Laboratory

- BIOL 2250 - Ecology
- BIOL 2251 - Ecology Laboratory
- BIOL 2300 - Principles of Genetics
- BIOL 3030 - Principles of Physiology
- BIOL 3230 - Field Botany
- BIOL 3231 - Field Botany Laboratory
  or
- BIOL 3150 - Plant Biology
• BIOL 3260 - Cell and Developmental Biology
  or
• BIOL 3310 - Cellular Physiology
• BIOL 3311 - Cellular Physiology Laboratory

• BIOL 3620 - Biological Evolution
  • CHEM 1120 - Introduction to Chemistry for the Allied Health Sciences
  • CHEM 1121 - Basic General, Organic, and Biochemistry Laboratory I
  • CHEM 1130 - Organic and Biochemistry for the Allied Health Sciences
• CHEM 1150 - General Chemistry I
• CHEM 1151 - General Chemistry Laboratory I
• CHEM 1160 - General Chemistry II
• CHEM 1161 - General Chemistry Laboratory II
• MATH 2121 - Calculus for the Life Sciences I
• MATH 2122 - Calculus for the Life Sciences II
• PHYS 1250 - General Physics
• PHYS 1251 - General Physics Laboratory
• PHYS 1260 - General Physics
• PHYS 1261 - General Physics Laboratory
  • PHYS 1251 - General Physics Laboratory
• SCIE 3604 - Investigations in Life and Environmental Science
• SCIE 3606 - Investigations in Earth and Space Science

Chemistry (55 s.h.)

• BIOL 1200 - Principles of Biology II
• BIOL 1201 - Principles of Biology Laboratory II
• CHEM 1150 - General Chemistry I
• CHEM 1151 - General Chemistry Laboratory I
• CHEM 1160 - General Chemistry II
• CHEM 1161 - General Chemistry Laboratory II
• CHEM 2250 - Quantitative and Instrumental Analysis
• CHEM 2251 - Quantitative and Instrumental Analysis Laboratory
• CHEM 2750 - Organic Chemistry I
• CHEM 2753 - Organic Chemistry Laboratory I
• CHEM 2760 - Organic Chemistry II
• CHEM 2763 - Organic Chemistry Laboratory II
• CHEM 3450 - Elementary Inorganic Chemistry
• CHEM 3451 - Elementary Inorganic Chemistry Laboratory
• CHEM 3850 - Introduction to Physical Chemistry
• CHEM 3851 - Introduction to Physical Chemistry Laboratory
• MATH 2121 - Calculus for the Life Sciences I
• MATH 2122 - Calculus for the Life Sciences II
  • MATH 2171 - Calculus I
  • MATH 2172 - Calculus II
• PHYS 1250 - General Physics
• PHYS 1251 - General Physics Laboratory
• PHYS 1260 - General Physics
Earth Science (54 s.h.)

- BIOL 1200 - Principles of Biology II
- BIOL 1201 - Principles of Biology Laboratory II
- CHEM 1150 - General Chemistry I
- CHEM 1151 - General Chemistry Laboratory I
- CHEM 1160 - General Chemistry II
- CHEM 1161 - General Chemistry Laboratory II
- GEOL 1550 - Oceanography or
- GEOL 1700 - Environmental Geology
- GEOL 1600 - Earth and Life Through Time
- GEOL 3050 - Mineralogy and Petrology I
- GEOL 3051 - Mineralogy and Petrology I Laboratory
- GEOL 3200 - Introduction to Field Methods
- GEOL 3250 - Introduction to Geomorphology
- GEOL 3251 - Introduction to Geomorphology Laboratory
- GEOL Elective over 3000 (3)
- MATH 2121 - Calculus for the Life Sciences I
- MATH 2122 - Calculus for the Life Sciences II
- PHYS 1250 - General Physics
- PHYS 1251 - General Physics Laboratory
- PHYS 1260 - General Physics
- PHYS 1261 - General Physics Laboratory
- PHYS 1251 - General Physics Laboratory
- SCIE 3350 - Descriptive Astronomy
- SCIE 3351 - Descriptive Astronomy
- SCIE 3360 - Physical Meteorology
- SCIE 3361 - Physical Meteorology
- SCIE 3602 - Investigations in Physical and Earth Science
- SCIE 3606 - Investigations in Earth and Space Science

Physics (55 s.h.)

- BIOL 1200 - Principles of Biology II
- BIOL 1201 - Principles of Biology Laboratory II
- CHEM 1150 - General Chemistry I
- CHEM 1151 - General Chemistry Laboratory I
- CHEM 1160 - General Chemistry II
- CHEM 1161 - General Chemistry Laboratory II
3. Specialty Area - 6 s.h.

- SCIE 3323 - Introduction to Teaching in the High School Science Classroom
- SCIE 4323 - The Teaching of Science in High School

4. Professional studies - 24-25 25-26 s.h.

- EDUC 3200 - Foundations of American Education
- EDUC 4400 - Foundations of School Learning, Motivation, and Assessment or
- PSYC 4305 - Educational Psychology
- READ 3990 - Teaching Reading in the Content Areas in the Secondary School or
- READ 5317 - Reading in the Junior and Senior High School
- SCIE 2123 - Early Experiences for the Prospective Teacher
- SCIE 4030 - Technology in Science Teaching
- SCIE 4324 - Internship in Science Education
- SCIE 4325 - Internship Seminar: Issues in Science Education
- SPED 4010 - Effective Instruction in Inclusive Classrooms

5. Electives to complete requirements for graduation.

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**Academic Concentrations**
Students in business education, elementary education, physical education, and health education are required to complete one 18 s.h. academic concentration. Middle grades education students are required to complete two 24 s.h. academic concentrations from English, mathematics, social studies, and general science only. Please consult your advisor for the appropriate concentration(s) in your area. A maximum of 6 s.h. can be counted toward foundations curriculum.

General Science - 24 s.h.

- BIOL 1050 - General Biology
- CHEM 1020 - General Descriptive Chemistry
- GEOL 1500 - Dynamic Earth
- PHYS 1250 - General Physics
- SCIE 3602 - Investigations in Physical and Earth Science
- SCIE 3604 - Investigations in Life and Environmental Science
- SCIE 3606 - Investigations in Earth and Space Science

Choose one of the following:

- SCIE 3350 - Descriptive Astronomy
- SCIE 3351 - Descriptive Astronomy
- SCIE 3360 - Physical Meteorology
- SCIE 3361 - Physical Meteorology

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AAAS 1000 - Introduction to African and African American Studies

3 DD

Provides a broad overview of African and African American Studies, as well as useful perspectives and frameworks for studying African peoples in Africa and diaspora/Atlantic World communities.

AAAS 2500 - Theory and Methods in African and African American Studies

3 WI

P: AAAS 1000. Introduction to key theories and interdisciplinary research methods utilized to study the experiences, cultures and communities of people of African descent in the US and throughout the African Diaspora.
AAAS 4000 - Senior Seminar

3

P: AAAS 1000; AAAS 2500. Declared majors and minors in AAAS, with senior status or consent of the instructor. Capstone for undergraduates in African and African American Studies.

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Courses

African and African American Studies

- AAAS 1000 - Introduction to African and African American Studies
- AAAS 2000 - Study Abroad
- AAAS 2500 - Theory and Methods in African and African American Studies
- AAAS 4000 - Senior Seminar

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African and African American Studies, BA

David Dennard, Director, A220 Brewster Building

The major in African and African American studies is an interdisciplinary degree program housed in the Thomas Harriot College of Arts and Sciences. Its comparative focus and multidisciplinary emphasis complement many existing programs that seek to prepare undergraduate students for competitive careers and productive work in a global world of different cultures, political systems, and economic infrastructures. Students pursuing a degree in AAAS will develop a broad perspective on human values and ethnic diversity, as well as an understanding of the socio-political, religious, and historical evidence related to African peoples, both in Africa and the diasporic communities of North America and the Atlantic world. Students are encouraged to combine a major in AAAS with others at East Carolina University.

Minimum degree requirement is 126 s.h. of credit as follows:

1. Foundations curriculum requirements - 42 s.h.

(For information about courses that carry foundations curriculum credit see Liberal Arts Foundations Curriculum.)
2. Demonstrated foreign language proficiency through level 1004 - 12 s.h.

(For information about the foreign language requirement see Additional Requirements for BA Degrees and Placement Testing, Foreign Language.)

3. Core - **21 9** s.h.

- AAAS 1000 - Introduction to African and African American Studies
- AAAS 2500 - Theory and Methods in African and African American Studies
- AAAS 4000 - Senior Seminar
- ENGL 3260 - African American Literature
- HIST 3810 - History of Africa
- POLS 3039 - Black Politics in America
- POLS 3265 - African Political Systems

4. Concentrations - **9 21** s.h.

(Choose 9 s.h. from one of the following. Choose 9 s.h. from any one of the following concentrations and 12 s.h. from any combination of courses from the 3 concentrations to complete the 21 s.h. requirement.)

**African Concentration:**

- AAAS 2000 - Study Abroad
- ANTH 3003 - Cultures of Africa
- ART 2906 - West and Central African Art
- ART 3970 - African Art
- ENGL 3280 - African Literature
- FREN 2443 - Readings in the Francophone Cultures of Africa
- GEOG 3050 - Africa
- HIST 3810 - History of Africa
- HIST 3820 - History of South Africa
- HIST 3830 - Africa and Islam
- POLS 3265 - African Political Systems
- RELI 3694 - Religions of Africa
African American Concentration:

- ART 3975 - African American Art
- DNCE 1013 - Jazz Dance I
- DNCE 1023 - Jazz Dance II
- ENGL 3260 - African American Literature
- ENGL 4340 - Ethnic American Literature
- HIST 3110 - History of African-Americans
- HIST 5230 - Themes in African American History
- HLTH 3020 - Health Disparities
- JUST 3700 - Race, Gender and Special Populations in the Criminal Justice System
- MUSC 2258 - History of Jazz Music
- PHIL 2455 - Introduction to Africana Philosophy
- POLS 3039 - Black Politics in America
- PSYC 2777 - Ethnocultural Psychology
- SOCI 1010 - Race, Gender and Class
- SOCI 4345 - Racial and Cultural Minorities
- SOCI 4347 - Social Inequality

Caribbean, Latin America and the Diaspora Concentration:

- ANTH 2760 - Afro-Caribbean Language and Culture
- ANTH 3016 - Cultures of the Caribbean
- ANTH 3115 - Caribbean Archeology
- ENGL 2760 - Afro-Caribbean Language and Culture
- ENGL 4280 - African and African Diaspora Literature
- GEOG 3049 - Latin America
- HIST 3710 - Introduction to Latin American History: Colonial Period
- HIST 3711 - Introduction to Latin-American History: Since 1808
- HIST 5130 - Comparative History of New World Slavery and Race Relations

5. Electives – 6 s.h.

(Choose 6 s.h. from the following.)

- AAAS 2000 - Study Abroad
- ANTH 3003 - Cultures of Africa
- ANTH 3016 - Cultures of the Caribbean
- ART 2906 - West and Central African Art
- DNCE 1013 - Jazz Dance I
- DNCE 1023 - Jazz Dance II
- LING 2760 - Afro-Caribbean Language and Culture
- FORL 2624 - Francophone Literature of Africa in Translation
- HIST 5130 - Comparative History of New World Slavery and Race Relations
- MUSC 2258 - History of Jazz Music
- PHIL 2455 - Introduction to Africana Philosophy
- SOCI 4345 - Racial and Cultural Minorities
- Any course in section 3 or 4 that is not being counted toward the major.

5. Minor - 24-28 s.h.

6. General electives to complete requirements for graduation.
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African and African American Studies Minor

David Dennard, Director, A220 Brewster Building

The minor requires 24 18 s.h. credit. A course may not be counted for both the major and minor in AAAS.

1. Core - 6 s.h.

- AAAS 1000 - Introduction to African and African American Studies
- AAAS 4000 - Senior Seminar
- AAAS 2500 - Theory and Methods in African and African American Studies

2. Electives - 18 12 s.h.

Choose at least three courses from each of the following areas of study listed below. Choose any combination of African and African American Studies, BA concentration courses.

(Insert hyperlink to the major.)

**African:**

- AAAS 2000 - Study Abroad
- ANTH 3003 - Cultures of Africa
- ART 2906 - West and Central African Art
- ART 3970 - African Art
- LING 2760 - Afro-Caribbean Language and Culture
• FORL 2624—Francophone Literature of Africa in Translation
• GEOG 3050—Africa
• HIST 3810—History of Africa
• HIST 3820—History of South Africa
• HIST 3830—Africa and Islam
• PHIL 2455—Introduction to Africana Philosophy
• POLS 3265—African Political Systems

African American:

• AAAS 2000—Study Abroad
• ENGL 3260—African American Literature
• ENGL 4340—Ethnic American Literature
• HIST 3110—History of African-Americans
• HIST 5130—Comparative History of New World Slavery and Race Relations
• HIST 5230—Themes in African American History
• JUST 3700—Race, Gender and Special Populations in the Criminal Justice System
• MUSC 2258—History of Jazz Music
• POLS 3039—Black Politics in America
• SOCL 4345—Racial and Cultural Minorities
• SOCL 4347—Social Inequality