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| **Biology**  \_\_\_\_\_BIO 5100 Marine Biology (3) (course fee – travel to Bermuda)  \_\_\_\_\_BIO 5120 Topics in Ecology and Environmental Biology (3)  \_\_\_\_\_BIO 5150 Advanced Microbiology (3)  \_\_\_\_\_BIO 5200 Current Trends in Molecular and Cell Biology (3)  \_\_\_\_\_BIO 5250 Evolutionary Botany (3)  \_\_\_\_\_BIO 5350 Evolutionary Zoology (3)  \_\_\_\_\_ BIOS 5025 The Natural History of Costa Rica (3) (course fee – international travel)  \_\_\_\_\_BIOS 5150 Independent Biology Research (3)  \_\_\_\_\_ BIOS 5160 Biogeography (3)  \_\_\_\_\_ BIOS 5770 Science in the Natural Environment (3) (course fee – travel to coast)  \_\_\_\_\_ BIOS XXXX Advanced Topics in Modern Biology (3)  \_\_\_\_\_ BTEC 5300 Medical Biotechnology (3)  \_\_\_\_\_ BIOS XXXX Genomics and Bioinformatics (3)  \_\_\_\_\_ BIOS 5280 Teaching Practicum in Biology (3)  **Chemistry**  \_\_\_\_\_CHM 5200 Current Trends in Chemistry (3)  \_\_\_\_\_CHM 5480 Historical Perspectives of Chemistry (3)  \_\_\_\_\_CHM 5500 Spectroscopic Methods of Structure Determination (3)  \_\_\_\_\_CHM 5600 Instruments for Chemical Analysis (3)  \_\_\_\_\_CHMS 5420 Environmental Chemistry (3) (Hybrid)  \_\_\_\_\_CHMS XXXX Forensic Chemistry (3) (Online) \_\_\_\_\_ CHMS XXXX Climate Change and Atmospheric Chemistry (3) (Hybrid)  **Earth Science**  \_\_\_\_\_GLY  5010 Essentials of Earth Science (3)  \_\_\_\_\_GLY  5020 Essentials of Earth History (3)  \_\_\_\_\_GLY  5410 Meteorology and Climatology (3)  \_\_\_\_\_ GLYS 5160 Essentials of Oceanography (3)  \_\_\_\_\_ GLY 5030 Geology of North Carolina (3)  \_\_\_\_\_GLYS 5010 Geology Fieldtrip (3)  \_\_\_\_\_ GLYS 5060 Isotope Geochemistry (3)  \_\_\_\_\_ GLYS 5090 Quaternary Climate Change (3)  \_\_\_\_\_ GLYS 5130 Environment & Culture (3)  \_\_\_\_\_ GLYS 5140 Remote Sensing (3)  \_\_\_\_\_ GLYS 5150 Local Geologic Research (3)  **Physics**  \_\_\_\_\_PHS 5000 The Art & Science of Chemistry & Physics (3) (online)  \_\_\_\_\_PHY 5200 Current Trends in Physics (3)  \_\_\_\_\_PHY 5480 Historical Perspectives of Physics (3)  \_\_\_\_\_PHY 5500 Classical Mechanics (3)  \_\_\_\_\_PHY 5600 Modern Physics (3)  PHYS XXXX Instrumentation in Physics (3)  \_\_\_\_\_PHYS XXXX Astronomy (3) | 15 |
| **Capstone Experience**  Individual Action Research, 3 written comprehensive exam questions, Taskstream e-Portfolio and Comprehensive Exit Oral Interview |  |
| **Phase II Total** | **21** |
| **Combined Total (Phase I and II)** | **36-39** |

**Phase I**

**Phase II**

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| **Professional Core (Phase I)**  \_\_\_\_\_EDN 5040 Basic Tenets of Education (3)  \_\_\_\_\_EDN 5120 Advanced Study of Exceptionality in Children (3)  \_\_\_\_\_EDN 5440 Survey of Educational Research (3) **(can take EDN 5660 instead, To be taken before SCE 5700)**  \_\_\_\_\_EDN 5460 Field Experience (0) | 9 |
| **Pedagogical Expertise (Phase I)**  \_\_\_\_\_SCE 5000 Teaching Science in Grades 6-12 (3) (online) | 3 |
| **Professional Development (Phase I)**  \_\_\_\_\_SCE 5810 Internship in Secondary Science Education (3)  (Required if the student has not provided appropriate documentation of one year of successful 9-12 public school teaching experience.) | 3 |
| **Academic Specialization (Phase I)**  \_\_\_\_\_Complete one graduate science course from the list in Phase II (3) | 3 |
| **Completion Product:** Teacher candidate work sample from Science Education – see booklet |  |
| **Phase I Total** | **18** |

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| **Pedagogical Expertise (Phase II)**  \_\_\_\_\_SCE 5600 Foundations of Science Education (3)  \_\_\_\_\_SCE 5700 Improving 9-12 Science Classroom Instruction (3) **(capstone experience - should be taken semester before graduation)** | 6 |
| **Academic Specialization (Phase II)** Courses must be approved by advisor.  Select one course from each discipline and one additional courses from any of the remaining courses listed: |  |



**Preparing professional educators who are committed, collaborative, and competent.**

#### M.A.T. Science Education

The goals of the program are designed to prepare a student to be able to:

1. Demonstrate breadth of general knowledge, as well as depth of knowledge, in the selected discipline area necessary for effective instructional decision-making.
2. Demonstrate a well-articulated knowledge of elementary, middle or secondary school communities and issues that impact teaching.
3. Exhibit knowledge of and show respect toward diverse cultural values and exceptionalities;
4. Communicate effectively in Standard oral and written English.
5. Adapt instructional strategies to the developmental and learning needs of individuals, including students with special needs and students from culturally diverse backgrounds.
6. Establish a classroom climate conducive to the learning, social, and emotional needs of students.
7. Choose objectives consistent with state and local curriculum guidelines, the learning needs of students, and guidelines established by learned societies.
8. Utilize technology in ways that enhance teaching and learning experiences.
9. Employ and analyze appropriate assessments and evaluative procedures.
10. Establish a pattern of reflective practice and scholarly inquiry culminating in confidence, professionalism, and effectiveness in the role of teacher.
11. Demonstrate knowledge of the history, philosophy and sociology of public education pertaining to the demonstration of best practices in education.
12. Meet departmental requirements for a capstone course, product, and/or examination.

If you have questions about this program, please contact the Graduate Science Education Program Director or the Undergraduate Science Education Program Coordinator:

Dr. Rita Hagevik, Graduate Program Director

rita.hagevik@uncp.edu

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Ms. Mary Ash, Undergraduate Program Coordinator mary.ash@uncp.edu

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