

## NC A&T Biological Engineering - Bioprocess Engineering

(Unofficial Community Colleges to NC A&T Curriculum)

Degree Earned: NC A&T Bachelor of Science in Biological Engineering- Bioprocess Engineering Transfer GPA= 2.5

Effective: 2016 Grey Highlighted Courses – Take at NC A&T

| FRESHMAN YEAR  |   |        |             |   |            |
|--|---|--------|-------------|---|------------|
| Com College  | Fall Semester   | Credit | Com College | Spring Semester                                   | Credit     |
| ACA 122  | GEEN 111 College of Engr                                | 1      | NC A&T      | GEEN 121 College of Engr Colloquium II            | 1          |
| ENG 111  | ENGL 100 Written Communication I                        | 3      | ENG 112     | ENGL 101 Written Communication II                 | 3          |
| CHM 151  | CHEM 106 Gen. Chemistry I                               | 3      | CHM 152     | CHEM 107 General Chemistry VII                    | 3          |
| CHM 151  | CHEM 116 Gen. Chemistry I Lab                           | 1      | MAT 272     | MATH 132 Calculus II                              | 4          |
| MAT 271  | MATH 131 Calculus I                                     | 4      | PHY 251     | PHYS 241 General Physics I                        | 3          |
| EGR 150  | GEEN 100 Engineering Design and Ethics                  | 2      | PHY 251     | PHYS 251 General Physics I Lab                    | 1          |
|  |   |        | CHM 152     | CHEM 117 General Chemistry VII Lab                | 1          |
| <b>14</b>  |   |        |             |   | <b>16</b>  |
| SOPHOMORE YEAR   |   |        |             |   |            |
| Com College  | Fall Semester   | Credit | Com College | Spring Semester                                   | Credit     |
| EGR 220  | MEEN 230 Mechanics I --- Statics                        | 3      | NC A&T      | African/American Studies elective                 | 3          |
| MAT 273  | MATH 231 Calculus III                                   | 4      | EGR 225     | CAEE 334 Engineering Mechanics II - Dynamics      | 2          |
| PHY 252  | PHYS 242 General Physics II                             | 3      | NC A&T      | BIOE Elective 1                                   | 2          |
| PHY 252  | PHYS 252 General Physics II Lab                         | 1      | BIO 111     | BIOL 101 Concepts of Biology                      | 4          |
|  | Humanities Elective                                     | 3      | NC A&T      | GEEN 161 Computer Programming - MatLab            | 2          |
|  |   |        | MAT 285     | MATH 431 – Differential Equations                 | 3          |
| <b>14</b>  |   |        |             |   | <b>16</b>  |
| JUNIOR YEAR  |   |        |             |   |            |
| Com College  | Fall Semester   | Credit | Com College | Spring Semester                                   | Credit     |
| NC A&T   | CHEN 200 Chemical Process Principles                    | 4      | NC A&T      | ECEN 340 Electrical Circuits & Systems            | 3          |
| NC A&T   | CAEE 362 Engineering Fluid Mechanics & Hydraulics       | 3      | NC A&T      | BIOE 330 Engineering Systems Analysis & Design    | 4          |
| NC A&T   | BIOE 221 General Microbiology                           | 3      | CHM 251     | CHEM 221/223 Organic Chemistry                    | 4          |
| NC A&T   | CHEN 312 Thermodynamics                                 | 3      |             | Global Studies, Elective                          | 3          |
| NC A&T   | BIOE 440 Engineering Properties of Biological Materials | 3      |             |   |            |
| <b>18</b>  |   |        |             |   | <b>14</b>  |
| SENIOR YEAR  |   |        |             |   |            |
| Com College  | Fall Semester   | Credit | Com College | Spring Semester                                   | Credit     |
| NC A&T   | Statistics Elective                                     | 3      | NC A&T      | BIOE 425 Instrumentation for Biological Systems   | 3          |
| NC A&T   | BIOE 422 Bioprocess Engineering                         | 3      | NC A&T      | BIOE 423 Fundamentals of Renewable Energy Systems | 3          |
| NC A&T   | ISEN 260 Engineering Economy                            | 3      | NC A&T      | BIOE 496 Engineering Design II (capstone)         | 2          |
| NC A&T   | BMEN 411 Transport Phenomena                            | 3      | NC A&T      | BIOE Elective (Choose from BIOE electives)        | 3          |
| NC A&T   | BIOE 495 Engineering Design I (capstone)                | 1      | ECO 251     | Social Behavioral Science Elective                | 3          |
| NC A&T   | CAAE 400 General Engineering Topics Review              | 1      |             |   |            |
| <b>14</b>  |   |        |             |   | <b>14</b>  |
| <b>NC A&amp;T - Minimum Credit Hours Required for Graduation in Biological Engineering</b> |   |        |             |   | <b>120</b> |