

# MAJOR IN BIOLOGICAL SCIENCE, BOTANY CONCENTRATION



Botany is the general study of plants and plant-like organisms from microscopic algae to giant redwoods, from mushrooming fungi to flowering angiosperms. Plant anatomy, how plants grow and develop, and how they survive and interrelate within their environments are topics of study. For students who like the outdoors, a career in plant ecology, taxonomy, or forestry might be appealing. Students attracted to the beauty and design of the microscopic world might enjoy a career in plant anatomy or plant developmental biology. Those interested in chemistry might enjoy plant biochemistry, molecular biology, or plant biotechnology. Those intrigued by plant diseases might become plant pathologists and the mathematically oriented might explore systems ecology, genetics, or plant biotechnology.

The botany curriculum begins with a solid foundation in mathematics, the biological sciences, chemistry, organic chemistry, physics, evolution, and genetics. Botany emphasizing terrestrial plant studies including plant systematics, anatomy, and ecology, biochemistry, and earth sciences round out the core. Botany students also take liberal arts and communications courses to give breadth to their education.

## Learning Objectives

Students completing the major in Biological Science with a concentration in Botany will attain a well-rounded education grounded in the natural sciences, with emphasis on the current state of knowledge in botany. Upon successfully completing the degree, they will be able to:

1. Attain a solid foundation in the natural sciences, with emphasis on biological processes and phenomena;
2. Demonstrate a fundamental understanding of biological concepts, processes, and phenomena that are broadly applicable to organisms, as well as more a detailed understanding of multiple aspects of biological concepts, processes and phenomena applicable to plants and allied organisms;
3. Demonstrate strong analytical, mathematical, and statistical skills, and the ability to apply these appropriately in botanical contexts;
4. Demonstrate the ability to analyze, synthesize, integrate, and evaluate material from botany and related fields, and effectively communicate such information.

Department of Biology Undergraduate Programs (<https://www.biology.colostate.edu/undergraduate-students/>)

## Requirements Effective Fall 2025

To be qualified for graduation, students must have a minimum grade of C- in all BZ, LIFE, and BC courses used to meet requirements for the major, as well as all Upper Division Botany Concentration Electives. This applies to courses taken as substitutions for meeting these requirements.

### Freshman

|                                                                                                                                                                                                                                             |                                                  | AUCC | Credits |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|------|---------|
| CHEM 111                                                                                                                                                                                                                                    | General Chemistry I (GT-SC2)                     | 3A   | 4       |
| CHEM 112                                                                                                                                                                                                                                    | General Chemistry Lab I (GT-SC1)                 | 3A   | 1       |
| CO 150                                                                                                                                                                                                                                      | College Composition (GT-CO2)                     | 1A   | 3       |
| LIFE 102                                                                                                                                                                                                                                    | Attributes of Living Systems (GT-SC1)            | 3A   | 4       |
| LIFE 103                                                                                                                                                                                                                                    | Biology of Organisms-Animals and Plants (GT-SC1) | 3A   | 4       |
| Select one course from the following:                                                                                                                                                                                                       |                                                  |      | 4       |
| MATH 155                                                                                                                                                                                                                                    | Calculus for Biological Scientists I (GT-MA1)    | 1B   |         |
| MATH 160                                                                                                                                                                                                                                    | Calculus for Physical Scientists I (GT-MA1)      | 1B   |         |
| 1C ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc</a> )                                        |                                                  | 1C   | 3       |
| Arts and Humanities ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities</a> ) |                                                  | 3B   | 6       |

### Total Credits

29

### Sophomore

|          |                           |   |
|----------|---------------------------|---|
| BZ 220   | Introduction to Evolution | 3 |
| CHEM 113 | General Chemistry II      | 3 |
| CHEM 114 | General Chemistry Lab II  | 1 |

|                                                                                                                                                                                                                                                                              |                                                  |       |              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-------|--------------|
| Select one group from the following:                                                                                                                                                                                                                                         |                                                  |       | 5-8          |
| Group A:                                                                                                                                                                                                                                                                     |                                                  |       |              |
| CHEM 245                                                                                                                                                                                                                                                                     | Fundamentals of Organic Chemistry                |       |              |
| CHEM 246                                                                                                                                                                                                                                                                     | Fundamentals of Organic Chemistry Laboratory     |       |              |
| Group B:                                                                                                                                                                                                                                                                     |                                                  |       |              |
| CHEM 341                                                                                                                                                                                                                                                                     | Modern Organic Chemistry I                       |       |              |
| CHEM 343                                                                                                                                                                                                                                                                     | Modern Organic Chemistry II                      |       |              |
| CHEM 344                                                                                                                                                                                                                                                                     | Modern Organic Chemistry Laboratory              |       |              |
| Select one course from the following:                                                                                                                                                                                                                                        |                                                  |       | 3            |
| STAT 301                                                                                                                                                                                                                                                                     | Introduction to Applied Statistical Methods      |       |              |
| STAT 307                                                                                                                                                                                                                                                                     | Introduction to Biostatistics                    |       |              |
| Historical Perspectives ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives</a> )              |                                                  | 3D    | 3            |
| Social and Behavioral Sciences ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences</a> ) |                                                  | 3C    | 3            |
| Electives                                                                                                                                                                                                                                                                    |                                                  |       | 6-9          |
| <b>Total Credits</b>                                                                                                                                                                                                                                                         |                                                  |       | <b>30</b>    |
| <b>Junior</b>                                                                                                                                                                                                                                                                |                                                  |       |              |
| BZ 325                                                                                                                                                                                                                                                                       | Plant Systematics                                |       | 4            |
| BZ 331                                                                                                                                                                                                                                                                       | Developmental Plant Anatomy                      |       | 4            |
| BZ 440                                                                                                                                                                                                                                                                       | Plant Physiology                                 |       | 3            |
| BZ 441                                                                                                                                                                                                                                                                       | Plant Physiology Laboratory                      |       | 2            |
| Select one group from the following:                                                                                                                                                                                                                                         |                                                  |       | 4-6          |
| Group A:                                                                                                                                                                                                                                                                     |                                                  |       |              |
| BC 351                                                                                                                                                                                                                                                                       | Principles of Biochemistry                       |       |              |
| Group B:                                                                                                                                                                                                                                                                     |                                                  |       |              |
| BC 401                                                                                                                                                                                                                                                                       | Comprehensive Biochemistry I                     |       |              |
| BC 403                                                                                                                                                                                                                                                                       | Comprehensive Biochemistry II                    |       |              |
| Select one group from the following:                                                                                                                                                                                                                                         |                                                  |       | 10           |
| Group A:                                                                                                                                                                                                                                                                     |                                                  |       |              |
| PH 121                                                                                                                                                                                                                                                                       | General Physics I (GT-SC1)                       | 3A    |              |
| PH 122                                                                                                                                                                                                                                                                       | General Physics II (GT-SC1)                      | 3A    |              |
| Group B:                                                                                                                                                                                                                                                                     |                                                  |       |              |
| PH 141                                                                                                                                                                                                                                                                       | Physics for Scientists and Engineers I (GT-SC1)  | 3A    |              |
| PH 142                                                                                                                                                                                                                                                                       | Physics for Scientists and Engineers II (GT-SC1) | 3A    |              |
| Upper Division Botany Concentration Elective (see list below)                                                                                                                                                                                                                |                                                  |       | 3            |
| <b>Total Credits</b>                                                                                                                                                                                                                                                         |                                                  |       | <b>30-32</b> |
| <b>Senior</b>                                                                                                                                                                                                                                                                |                                                  |       |              |
| BZ 310                                                                                                                                                                                                                                                                       | Cell Biology                                     |       | 4            |
| BZ 350                                                                                                                                                                                                                                                                       | Molecular and General Genetics                   | 4A,4B | 4            |
| BZ 450                                                                                                                                                                                                                                                                       | Plant Ecology                                    | 4C    | 4            |
| Upper Division Botany Concentration Electives (see list below)                                                                                                                                                                                                               |                                                  |       | 9            |
| Advanced Writing ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing</a> )                                   |                                                  | 2     | 3            |
| Electives <sup>1</sup>                                                                                                                                                                                                                                                       |                                                  |       | 5-7          |
| <b>Total Credits</b>                                                                                                                                                                                                                                                         |                                                  |       | <b>29-31</b> |
| <b>Program Total Credits:</b>                                                                                                                                                                                                                                                |                                                  |       | <b>120</b>   |

## Upper Division Botany Concentration Electives

| Code                | Title                                                                              | Credits |
|---------------------|------------------------------------------------------------------------------------|---------|
| ATS 350             | Introduction to Weather and Climate                                                | 2       |
| BSPM 308            | Ecology and Management of Weeds                                                    | 3       |
| BSPM 361            | Elements of Plant Pathology                                                        | 3       |
| BSPM 365            | Integrated Tree Health Management                                                  | 4       |
| BSPM 450            | Molecular Plant-Microbe Interaction                                                | 3       |
| BZ 223<br>or BZ 240 | Plant Identification <sup>2</sup><br>Synthetic Biology-Principles and Applications | 3       |
| BZ 320              | Biogeographic Approaches to Conservation                                           | 3       |
| BZ 333              | Introductory Mycology                                                              | 4       |
| BZ 339              | Biology Field Practicum                                                            | 3       |
| BZ 342              | Exploring Range Shifts in a Changing World                                         | 3       |
| BZ 348/MATH 348     | Theory of Population and Evolutionary Ecology                                      | 4       |
| BZ 349              | Tropical Ecology and Evolution                                                     | 3       |
| BZ 360              | Bioinformatics and Genomics                                                        | 4       |
| BZ 415              | Marine Biology                                                                     | 4       |
| BZ 424/BSPM 424     | Principles of Systematic Science                                                   | 3       |
| BZ 425              | Conservation and Population Genomics                                               | 3       |
| BZ 449A             | Study Abroad–Ecuador: Ecology/<br>Conservation–Ecuadorian Biodiversity             | 4       |
| BZ 460              | Genome Evolution                                                                   | 4       |
| BZ 471              | Stream Biology and Ecology                                                         | 3       |
| BZ 472              | Stream Biology and Ecology Laboratory                                              | 1       |
| BZ 477              | Genome Editing Laboratory                                                          | 2       |
| BZ 492B             | Seminar: Ecology                                                                   | 1-3     |
| BZ 492C             | Seminar: Genetics                                                                  | 1-3     |
| BZ 492F             | Seminar: Evolution                                                                 | 1-3     |
| BZ 525              | Advanced Conservation & Evolutionary Genomics                                      | 4       |
| BZ 526/BSPM 526     | Evolutionary Ecology                                                               | 3       |
| BZ 541              | Hemp Biology                                                                       | 3       |
| BZ 560              | Teaching and Communicating Science                                                 | 3       |
| BZ 562              | Computational Approaches in Molecular Ecology                                      | 2       |
| BZ 568/FW 568       | Sustaining River Ecosystems in Changing World                                      | 3       |
| BZ 570              | Molecular Aspects of Plant Development                                             | 3       |
| BZ 572              | Phytoremediation                                                                   | 3       |
| F 311               | Forest Ecology                                                                     | 3       |
| F 313/RS 313        | Dendrology and Herbaceous Plant ID                                                 | 3       |
| F 324               | Fire Effects and Adaptations                                                       | 3       |

|                |                                          |   |
|----------------|------------------------------------------|---|
| F 325          | Silviculture                             | 3 |
| F 421          | Ecological Forest Management             | 3 |
| F 430          | Forestry Field Practices                 | 3 |
| F 466/HORT 466 | Urban and Community Forestry             | 3 |
| F 510          | Ecophysiology of Trees                   | 3 |
| GR 348         | Biogeography                             | 3 |
| HORT 401       | Medicinal and Value-Added Uses of Plants | 3 |
| HORT 476       | Environmental Plant Stress Physiology    | 3 |
| PHIL 325       | Philosophy of Science                    | 3 |
| RS 351         | Wildland Ecosystems in a Changing World  | 3 |
| RS 378         | Disturbance Ecology                      | 2 |
| SOCR 210       | Microbiome Roles in a Sustainable Earth  | 3 |
| SOCR 335       | Applied Plant Genetics                   | 3 |
| SOCR 375       | Soil Biogeochemistry                     | 3 |
| SOCR 440       | Pedology and Soil Survey                 | 4 |
| SOCR 441       | Soil Ecology                             | 3 |
| SOCR 442       | Forest and Range Soils                   | 3 |

A maximum of 3 credits may be selected from the following courses:

|        |                              |
|--------|------------------------------|
| BZ 384 | Supervised College Teaching  |
| BZ 487 | Internship                   |
| BZ 495 | Independent Study            |
| BZ 498 | Laboratory or Field Research |

<sup>1</sup> Select enough elective credits to bring the program total to a minimum of 120 credits, of which at least 42 must be upper-division (300- to 400-level).

<sup>2</sup> Students may take BZ 223 OR BZ 240. Only one course will count towards the major.

## Major Completion Map

### Distinctive Requirements for Degree Program:

TO PREPARE FOR FIRST SEMESTER: The curriculum for the Botany Concentration assumes students enter college prepared to take calculus. Entering students who are not prepared to take calculus will need to fulfill pre-calculus requirements in the first semester. Please discuss with your advisor. LIFE 102 requires high school chemistry as a prerequisite; CHEM 111 requires Algebra II as a prerequisite (this prerequisite is met by having Algebra II by test credit, transfer credit, or placement out of MATH 117 and MATH 118 on Math Placement Exam). C- or better in all BZ, LIFE, and BC courses used to meet requirements for the major, as well as all Upper-Division Botany Concentration Electives. Term 4 may have to be adjusted if the student chooses 2 semesters of Organic Chemistry. Do not attempt more than three science and math courses per term. It is recommended that you do not take BZ 310 and BZ 350 together.

### Freshman

#### Semester 1

|          |                                       |
|----------|---------------------------------------|
| CO 150   | College Composition (GT-CO2)          |
| LIFE 102 | Attributes of Living Systems (GT-SC1) |

Select one course from the following:

|          |                                               |
|----------|-----------------------------------------------|
| MATH 155 | Calculus for Biological Scientists I (GT-MA1) |
| MATH 160 | Calculus for Physical Scientists I (GT-MA1)   |

| Critical | Recommended | AUCC | Credits |
|----------|-------------|------|---------|
| X        |             | 1A   | 3       |
| X        |             | 3A   | 4       |
| X        |             |      | 4       |
|          |             | 1B   |         |
|          |             | 1B   |         |

|                                                                                                                                                                                                                                                                              |                                                  |          |             |      |         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|----------|-------------|------|---------|
| Arts and Humanities ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities</a> )                                  |                                                  | X        | 3B          | 3    |         |
| Total Credits                                                                                                                                                                                                                                                                |                                                  |          |             | 14   |         |
| Semester 2                                                                                                                                                                                                                                                                   |                                                  | Critical | Recommended | AUCC | Credits |
| CHEM 111                                                                                                                                                                                                                                                                     | General Chemistry I (GT-SC2)                     | X        |             | 3A   | 4       |
| CHEM 112                                                                                                                                                                                                                                                                     | General Chemistry Lab I (GT-SC1)                 | X        |             | 3A   | 1       |
| LIFE 103                                                                                                                                                                                                                                                                     | Biology of Organisms-Animals and Plants (GT-SC1) | X        |             | 3A   | 4       |
| 1C ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc</a> )                                                                         |                                                  |          | X           | 1C   | 3       |
| Arts and Humanities ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities</a> )                                  |                                                  |          | X           | 3B   | 3       |
| CO 150 must be completed by the end of Semester 2.                                                                                                                                                                                                                           |                                                  | X        |             |      |         |
| MATH 124, MATH 125 may be necessary for some students to fulfill pre-calculus requirements.                                                                                                                                                                                  |                                                  |          | X           |      |         |
| Total Credits                                                                                                                                                                                                                                                                |                                                  |          |             | 15   |         |
| Sophomore                                                                                                                                                                                                                                                                    |                                                  |          |             |      |         |
| Semester 3                                                                                                                                                                                                                                                                   |                                                  | Critical | Recommended | AUCC | Credits |
| BZ 220                                                                                                                                                                                                                                                                       | Introduction to Evolution                        | X        |             |      | 3       |
| CHEM 113                                                                                                                                                                                                                                                                     | General Chemistry II                             | X        |             |      | 3       |
| CHEM 114                                                                                                                                                                                                                                                                     | General Chemistry Lab II                         | X        |             |      | 1       |
| Historical Perspectives ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives</a> )              |                                                  |          | X           | 3D   | 3       |
| Electives                                                                                                                                                                                                                                                                    |                                                  |          | X           |      | 6       |
| MATH 155 or MATH 160 must be completed by the end of Semester 3.                                                                                                                                                                                                             |                                                  | X        |             |      |         |
| Total Credits                                                                                                                                                                                                                                                                |                                                  |          |             | 16   |         |
| Semester 4                                                                                                                                                                                                                                                                   |                                                  | Critical | Recommended | AUCC | Credits |
| Select one group from the following:                                                                                                                                                                                                                                         |                                                  | X        |             |      | 5-8     |
| Group A:                                                                                                                                                                                                                                                                     |                                                  |          |             |      |         |
| CHEM 245                                                                                                                                                                                                                                                                     | Fundamentals of Organic Chemistry                |          |             |      |         |
| CHEM 246                                                                                                                                                                                                                                                                     | Fundamentals of Organic Chemistry Laboratory     |          |             |      |         |
| Group B:                                                                                                                                                                                                                                                                     |                                                  |          |             |      |         |
| CHEM 341                                                                                                                                                                                                                                                                     | Modern Organic Chemistry I                       |          |             |      |         |
| CHEM 343                                                                                                                                                                                                                                                                     | Modern Organic Chemistry II                      |          |             |      |         |
| CHEM 344                                                                                                                                                                                                                                                                     | Modern Organic Chemistry Laboratory              |          |             |      |         |
| Select one course from the following:                                                                                                                                                                                                                                        |                                                  | X        |             |      | 3       |
| STAT 301                                                                                                                                                                                                                                                                     | Introduction to Applied Statistical Methods      |          |             |      |         |
| STAT 307                                                                                                                                                                                                                                                                     | Introduction to Biostatistics                    |          |             |      |         |
| Social and Behavioral Sciences ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences</a> ) |                                                  |          | X           | 3C   | 3       |
| Elective                                                                                                                                                                                                                                                                     |                                                  |          | X           |      | 0-3     |
| Total Credits                                                                                                                                                                                                                                                                |                                                  |          |             | 14   |         |
| Junior                                                                                                                                                                                                                                                                       |                                                  |          |             |      |         |
| Semester 5                                                                                                                                                                                                                                                                   |                                                  | Critical | Recommended | AUCC | Credits |
| BZ 331                                                                                                                                                                                                                                                                       | Developmental Plant Anatomy                      | X        |             |      | 4       |
| Select one course from the following:                                                                                                                                                                                                                                        |                                                  | X        |             |      | 3-4     |
| BC 351                                                                                                                                                                                                                                                                       | Principles of Biochemistry                       |          |             |      |         |
| BC 401                                                                                                                                                                                                                                                                       | Comprehensive Biochemistry I                     |          |             |      |         |
| Select one course from the following:                                                                                                                                                                                                                                        |                                                  | X        |             |      | 5       |
| PH 121                                                                                                                                                                                                                                                                       | General Physics I (GT-SC1)                       |          |             | 3A   |         |
| PH 141                                                                                                                                                                                                                                                                       | Physics for Scientists and Engineers I (GT-SC1)  |          |             | 3A   |         |
| Upper Division Botany Concentration Elective (see list on Concentration Requirements tab)                                                                                                                                                                                    |                                                  |          | X           |      | 3       |

STAT 301 or STAT 307 must be completed by the end of Semester 5. X

| Total Credits                         |                                                  |          |             | 15-16 |         |
|---------------------------------------|--------------------------------------------------|----------|-------------|-------|---------|
| Semester 6                            |                                                  | Critical | Recommended | AUCC  | Credits |
| To complete BC 401 series option:     |                                                  |          |             |       | 0-3     |
| BC 403                                | Comprehensive Biochemistry II                    |          |             |       |         |
| BZ 325                                | Plant Systematics                                |          |             |       | 4       |
| BZ 440                                | Plant Physiology                                 |          |             |       | 3       |
| BZ 441                                | Plant Physiology Laboratory                      |          |             |       | 2       |
| Select one course from the following: |                                                  |          |             |       | 5       |
| PH 122                                | General Physics II (GT-SC1)                      |          | X           | 3A    |         |
| PH 142                                | Physics for Scientists and Engineers II (GT-SC1) |          | X           | 3A    |         |

| Total Credits                                                                                                                                                                                                                              |              |          |             |      | 14-17   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------|-------------|------|---------|
| Senior                                                                                                                                                                                                                                     |              |          |             |      |         |
| Semester 7                                                                                                                                                                                                                                 |              | Critical | Recommended | AUCC | Credits |
| BZ 310                                                                                                                                                                                                                                     | Cell Biology | X        |             |      | 4       |
| Advanced Writing ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing</a> ) |              |          | X           | 2    | 3       |
| Upper Division Botany Concentration Electives (see list on Concentration Requirements tab)                                                                                                                                                 |              |          | X           |      | 6       |
| Elective                                                                                                                                                                                                                                   |              |          |             |      | 3       |

| Total Credits                                                                                        |                                |          |             |       | 16      |
|------------------------------------------------------------------------------------------------------|--------------------------------|----------|-------------|-------|---------|
| Semester 8                                                                                           |                                | Critical | Recommended | AUCC  | Credits |
| BZ 350                                                                                               | Molecular and General Genetics | X        |             | 4A,4B | 4       |
| BZ 450                                                                                               | Plant Ecology                  | X        |             | 4C    | 4       |
| Upper Division Botany Concentration Elective (see list on Concentration Requirements tab)            |                                | X        |             |       | 3       |
| Elective                                                                                             |                                |          | X           |       | 2-4     |
| The benchmark courses for the 8th semester are the remaining courses in the entire program of study. |                                | X        |             |       |         |

| <b>Total Credits</b>          |  |  |  | <b>13-15</b> |
|-------------------------------|--|--|--|--------------|
| <b>Program Total Credits:</b> |  |  |  | <b>120</b>   |