

Chemistry, BS

Bachelor of Science in Chemistry Degree Program Requirements

Complete Core Curriculum Listing at <https://catalog.pvamu.edu/universitycorecurriculum/>

Core Curriculum 42 Credit Hours

| | | |
|---|---|------------|
| Communication (Select Two) | | 6 |
| Mathematics | | 3 |
| MATH 1316 | Trigonometry | |
| Life and Physical Sciences | | 6 |
| PHYS 2325 or PHYS 1301 | University Physics I General Physics I | |
| PHYS 2326 or PHYS 1302 | University Physics II General Physics II | |
| Language, Philosophy, and Culture (Select One) | | 3 |
| Creative Arts (Select One) | | 3 |
| American History (Select Two) | | 6 |
| Government/Political Science | | 6 |
| POSC 2305 | American Government | |
| POSC 2306 | Texas Government | |
| Social and Behavioral Sciences (Select One) | | 3 |
| Component Area Option One (Select One) | | 3 |
| Component Area Option Two (Select One) | | 3 |
| Departmental Requirements (Foreign Language Elective - one language) | | 6 |
| Major Requirements ¹ | | 36 |
| CHEM 1203 | General Chemistry Lab | |
| CHEM 1303 | General Inorganic Chemistry I | |
| CHEM 1204 | General Inorganic Chemistry Laboratory II | |
| CHEM 1304 | General Inorganic Chemistry II | |
| CHEM 2201 | Quantitative Analysis | |
| CHEM 2211 | Quantitative Analysis Lab | |
| CHEM 2203 | Organic Chemistry Lab I | |
| CHEM 2303 | General Organic Chemistry I | |
| CHEM 2204 | Organic Chemistry Lab II | |
| CHEM 2304 | General Organic Chemistry II | |
| CHEM 3341 | Physical Chemistry | |
| CHEM 3242 | Physical Chemistry Lab | |
| CHEM 4303 | Biochemistry | |
| CHEM 4105 | Research | |
| CHEM 4305 | Instrumental Analysis | |
| Support Area | | 13 |
| BIOL 1501 | General Biology | |
| MATH 2413 | Calculus with Analytic Geometry I | |
| MATH 2414 | Calculus with Analytic Geometry II | |
| Select one of the following concentrations from below | | 23 |
| Total Hours | | 120 |

Traditional Chemistry Concentration

| | | |
|-----------|---|---|
| CHEM 3342 | Physical Chemistry | 3 |
| CHEM 3243 | Physical Chemistry Lab | 2 |
| CHEM 4100 | Journal Reading and Chemical Literature | 1 |
| CHEM 4205 | Instrumental Analysis Lab | 2 |

| | | |
|--|--|-----------|
| CHEM 4106 | Research | 1 |
| CHEM 4306 | Inorganic Chemistry | 3 |
| MATH 3401 | Calculus III | 4 |
| PHYS 1101 | General Physics Lab I | 1 |
| PHYS 1102 | General Physics Lab II | 1 |
| Restricted electives (Select 5 hours from the courses below): | | 5 |
| BIOL 1102 | Biology Seminar | |
| BIOL 3401 | Human Physiology and Anatomy | |
| BIOL 3402 | Human Physiology and Anatomy | |
| BIOL 3403 | General Microbiology | |
| CHEM 3350 | Introduction to Cosmetic Chemistry | |
| CHEM 3351 | Introduction to Green and Sustainable Chemistry Principles | |
| CHEM 4302 | Forensic Chemistry | |
| CHEM 4204 | Biochemistry Laboratory | |
| Total Hours | | 23 |

Biomedical Science Concentration

| | | |
|--|--|-----------|
| BIOL 1502 | General Biology | 5 |
| BIOL 3401 | Human Physiology and Anatomy | 4 |
| MATH 1342 | Elementary Statistics | 3 |
| PHYS 1101 | General Physics Lab I | 1 |
| PHYS 1102 | General Physics Lab II | 1 |
| Restricted Electives (Select 9 hours from the courses below): | | 9 |
| BIOL 1102 | Biology Seminar | |
| BIOL 2416 | Genetics | |
| BIOL 3402 | Human Physiology and Anatomy | |
| BIOL 3403 | General Microbiology | |
| CHEM 3243 | Physical Chemistry Lab | |
| CHEM 3342 | Physical Chemistry | |
| CHEM 3350 | Introduction to Cosmetic Chemistry | |
| CHEM 3351 | Introduction to Green and Sustainable Chemistry Principles | |
| CHEM 4100 | Journal Reading and Chemical Literature | |
| CHEM 4205 | Instrumental Analysis Lab | |
| CHEM 4106 | Research | |
| CHEM 4306 | Inorganic Chemistry | |
| Total Hours | | 23 |

Forensic Science Concentration

| | | |
|--|--|----------|
| CHEM 4100 | Journal Reading and Chemical Literature | 1 |
| CHEM 4302 | Forensic Chemistry | 3 |
| CHEM 4203 | Forensic Chemistry Lab ² | 2 |
| CHEM 4306 | Inorganic Chemistry | 3 |
| MATH 1342 | Elementary Statistics | 3 |
| PHYS 2125 | University Physics Lab I | 1 |
| PHYS 2126 | University Physics Lab II | 1 |
| Restricted Electives (Select 9 hours from the following courses): | | 9 |
| CHEM 3350 | Introduction to Cosmetic Chemistry | |
| CHEM 3351 | Introduction to Green and Sustainable Chemistry Principles | |
| CRIJ 1301 | Introduction to Criminal Justice | |
| CRIJ 1306 | Court Systems and Practices | |
| CRIJ 3362 | Criminal Law | |
| CRIJ 4392 | Criminology | |
| BIOL 1502 | General Biology | |

| | |
|-----------|------------------------------|
| BIOL 2416 | Genetics |
| BIOL 3401 | Human Physiology and Anatomy |
| BIOL 3402 | Human Physiology and Anatomy |
| BIOL 3403 | General Microbiology |
| BIOL 3404 | Immunology |
| BIOL 3307 | Molecular Biology I |

Total Hours **23**

¹ Students majoring in Chemistry must earn a minimum grade of "C" in all classes taken in their major disciplines

² A six-week summer internship or externship in an approved forensic laboratory or DEA Laboratory can be used to earn credit for CHEM 4203 by submitting a detailed report of laboratory techniques acquired during the externship

Bachelor of Science in Chemistry- Traditional Degree Sequence

Core: <https://catalog.pvamu.edu/universitycorecurriculum/>

Freshman

| Fall - Semester 1 | Hours | Spring - Semester 2 | Hours | Summer | Hours |
|-----------------------------------|-------|-------------------------|-------|-------------------------|----------|
| CHEM 1303 | | 3 CHEM 1304 | | 3 American History Core | 3 |
| CHEM 1203 | | 2 CHEM 1204 | | 2 | |
| Communication Core | | 3 Communication Core | | 3 | |
| Component Area Option Two Core | | 3 American History Core | | 3 | |
| Mathematics Core | | 3 MATH 2413 | | 4 | |
| MATH 1316 | | | | | |
| Total | | 14 Total | | 15 Total | 3 |

Total Hours: 32

Sophomore

| Fall - Semester 1 | Hours | Spring - Semester 2 | Hours |
|--|-------|--|-----------|
| CHEM 2203 | | 2 CHEM 2204 | 2 |
| CHEM 2303 | | 3 CHEM 2304 | 3 |
| Government/Political Science Core POSC 2305 | | 3 Government/Political Science Core POSC 2306 | 3 |
| BIOL 1501 | | 5 Language, Philosophy, and Culture Core | 3 |
| CHEM 2201 | | 2 MATH 2414 | 4 |
| CHEM 2211 | | 2 | |
| Total | | 17 Total | 15 |

Total Hours: 32

Junior

| Fall - Semester 1 | Hours | Spring - Semester 2 | Hours |
|--|-------|--|-----------|
| PHYS 1101 | | 1 Component Area Option One Core | 3 |
| Life and Physical Sciences Core PHYS 2325 | | 3 Life and Physical Sciences Core PHYS 2326 | 3 |
| CHEM 3341 | | 3 PHYS 1102 | 1 |
| CHEM 3242 | | 2 CHEM 4100 | 1 |
| Creative Arts Core | | 3 CHEM 3342 | 3 |
| CHEM 4105 | | 1 CHEM 3243 | 2 |
| Restricted Elective | | 1 Social and Behavioral Sciences Core | 3 |
| Total | | 14 Total | 16 |

Total Hours: 30

Senior

| Fall - Semester 1 | Hours | Spring - Semester 2 | Hours |
|--------------------------|--------------|----------------------------|--------------|
| CHEM 4303 | | 3 CHEM 4306 | 3 |
| MATH 3401 | | 4 CHEM 4305 | 3 |
| Restricted Elective | | 4 CHEM 4205 | 2 |
| Foreign Language I | | 3 CHEM 4106 | 1 |
| | | Foreign Language II | 3 |
| Total | | 14 Total | 12 |

Total Hours: 26

| Name | Unit |
|-------------|-------------|
|-------------|-------------|

Total Semester Credit Hours: 120

BS Chemistry-Biomedical ScienceCore: <https://catalog.pvamu.edu/universitycorecurriculum/>**Freshman**

| Fall - Semester 1 | Hours | Spring - Semester 2 | Hours | Summer | Hours |
|-----------------------------------|--------------|----------------------------|--------------|-------------------------|--------------|
| CHEM 1303 | | 3 CHEM 1304 | | 3 American History Core | 3 |
| CHEM 1203 | | 2 CHEM 1204 | | 2 | |
| Communication Core | | 3 Communication Core | | 3 | |
| Component Area Option One Core | | 3 American History Core | | 3 | |
| Mathematics Core | | 3 MATH 2413 | | 4 | |
| MATH 1316 | | | | | |
| Total | | 14 Total | | 15 Total | 3 |

Total Hours: 32**Sophomore**

| Fall - Semester 1 | Hours | Spring - Semester 2 | Hours |
|-----------------------------------|--------------|-------------------------------------|--------------|
| CHEM 2203 | | 2 CHEM 2204 | 2 |
| CHEM 2303 | | 3 CHEM 2304 | 3 |
| Government/Political Science Core | | 3 Government/Political Science Core | 3 |
| POSC 2305 | | POSC 2306 | |
| BIOL 1501 | | 5 BIOL 1502 | 5 |
| CHEM 2201 | | 2 MATH 2414 | 4 |
| CHEM 2211 | | 2 | |
| Total | | 17 Total | 17 |

Total Hours: 34**Junior**

| Fall - Semester 1 | Hours | Spring - Semester 2 | Hours |
|--|--------------|---------------------------------------|--------------|
| PHYS 1101 | | 1 CHEM 4105 | 1 |
| Life and Physical Sciences Core | | 3 Life and Physical Sciences Core | 3 |
| PHYS 2325 | | PHYS 2326 | |
| CHEM 3341 | | 3 PHYS 1102 | 1 |
| CHEM 3242 | | 2 Social and Behavioral Sciences Core | 3 |
| BIOL 3401 | | 4 MATH 1342 | 3 |
| Language, Philosophy, and Culture Core | | 3 Creative Arts Core | 3 |
| Total | | 16 Total | 14 |

Total Hours: 30

Senior

| Fall - Semester 1 | Hours | Spring - Semester 2 | Hours |
|--------------------------|--------------|----------------------------------|--------------|
| CHEM 4303 | | 3 Component Area Option Two Core | 3 |
| Restricted Elective | | 3 CHEM 4305 | 3 |
| Restricted Elective | | 3 Research Elective | 3 |
| Foreign Language I | | 3 Foreign Language II | 3 |
| Total | | 12 Total | 12 |

Total Hours: 24

| Name | Unit |
|-------------|-------------|
|-------------|-------------|

Total Semester Credit Hours: 120

BS Chemistry-Forensic ScienceCore: <https://catalog.pvamu.edu/universitycorecurriculum/>**Freshman**

| Fall - Semester 1 | Hours | Spring - Semester 2 | Hours | Summer | Hours |
|--------------------------------|--------------|----------------------------|--------------|-------------------------|--------------|
| CHEM 1303 | | 3 CHEM 1304 | | 3 American History Core | 3 |
| CHEM 1203 | | 2 CHEM 1204 | | 2 | |
| Communication Core | | 3 Communication Core | | 3 | |
| Component Area Option Two Core | | 3 American History Core | | 3 | |
| Mathematics Core | | 3 MATH 2413 | | 4 | |
| MATH 1316 | | | | | |
| Total | | 14 Total | | 15 Total | 3 |

Total Hours: 32**Sophomore**

| Fall - Semester 1 | Hours | Spring - Semester 2 | Hours |
|-----------------------------------|--------------|--|--------------|
| CHEM 2203 | | 2 CHEM 2204 | 2 |
| CHEM 2303 | | 3 CHEM 2304 | 3 |
| Government/Political Science Core | | 3 Government/Political Science Core | 3 |
| POSC 2305 | | POSC 2306 | |
| BIOL 1501 | | 5 Language, Philosophy, and Culture Core | 3 |
| CHEM 2201 | | 2 MATH 2414 | 4 |
| CHEM 2211 | | 2 | |
| Total | | 17 Total | 15 |

Total Hours: 32**Junior**

| Fall - Semester 1 | Hours | Spring - Semester 2 | Hours |
|---------------------------------|--------------|------------------------------|--------------|
| PHYS 2125 | | 1 CHEM 4305 | 3 |
| Life and Physical Sciences Core | | 3 Life and Physical Sciences | 3 |
| PHYS 2325 | | PHYS 2326 | |
| CHEM 3341 | | 3 PHYS 2126 | 1 |
| CHEM 3242 | | 2 CHEM 4100 | 1 |
| Creative Arts Core | | 3 CHEM 4302 | 3 |
| MATH 1342 | | 3 CHEM 4203 | 2 |
| Total | | 15 Total | 13 |

Total Hours: 28

Senior

| Fall - Semester 1 | Hours | Spring - Semester 2 | Hours |
|-------------------------------------|--------------|----------------------------------|--------------|
| CHEM 4303 | | 3 CHEM 4306 | 3 |
| CHEM 4105 | | 1 Component Area Option Two Core | 3 |
| Social and Behavioral Sciences Core | | 3 Restricted Elective | 3 |
| Restricted Elective | | 3 Restricted Elective | 3 |
| Foreign Language I | | 3 Foreign Language II | 3 |
| Total | | 13 Total | 15 |

Total Hours: 28

| Name | Unit |
|-------------|-------------|
|-------------|-------------|

Total Semester Credit Hours: 120

Marketable Skills

Marketable skills, as defined by the Texas Higher Education Coordinating Board's 60x30TX Plan (<http://www.60x30tx.com/>), include interpersonal, cognitive, and applied skill areas, are valued by employers, and can be either primary or complementary to a major. Marketable skills are acquired by students through education, including curricular, co-curricular, and extracurricular activities.

BS Chemistry***Degree Skills***

1. Conduct scientific research
2. Analyze and summarize data
3. Use of diverse instrumentation

Concentration Skills

1. Project management
2. Environmental analysis
3. Problem solving

Co-curricular and Extracurricular Skills

1. Mathematics
2. Computer programming
3. Technical writing and presentation skills