

Bioinformatics (B.S.)

2024-2025 Academic Catalog, Bachelor of Science – Bioinformatics

Academic Core for B.S.

49 Hours

| CHRISTIAN STUDIES | | 6 |
|-------------------|----------------------------|---|
| CSBS 1311 | Engaging the Old Testament | 3 |
| CSBS 1312 | Engaging the New Testament | 3 |

| ENGLISH | | 9 |
|-----------|---------------------------|---|
| ENGL 1321 | Rhetoric & Composition I | 3 |
| ENGL 1322 | Rhetoric & Composition II | 3 |
| ENGL | Literature | 3 |

A grade of a "C" or higher is required in ENGL 1321 and ENGL 1322.

| EXERCISE & SPORT SCIENCE – SELECT TWO DIFFERENT COURSES | | 2 |
|---|-----------------|---|
| EXAC | Activity Course | 1 |
| EXAC | Activity Course | 1 |

| FINE ARTS – SELECT ONE | | 3 |
|------------------------|-------------------------|---|
| ARTS 1310 | Drawing I | 3 |
| ARTS 1320 | Design | 3 |
| ARTS 1350 | Art Appreciation | 3 |
| ARTS 2360 | Ceramics I | 3 |
| COMM 2335 | Film Appreciation | 3 |
| COMM 2335 | Film Appreciation | 3 |
| FINA 2330 | Exploring the Fine Arts | 3 |
| MUSI 1340 | Music Appreciation | 3 |
| THEA 2350 | Theatre Appreciation | 3 |

| WORLD CULTURES – SELECT ONE | | 3 |
|-----------------------------|--|---|
| ARTS 2354 | World Art | 3 |
| EXSS 2353 | Lifespan Nutrition | 3 |
| GLBL 2310 | Cultural Immersion | 3 |
| HIST 1311 | History of World Civilizations to 1500 | 3 |
| HIST 1312 | History of World Civilizations since 1500 | 3 |
| HIST 2350 | An Introduction to the Politics and Culture of Ancient Greece and Rome | 3 |
| HUMA 2355 | Foundations of the Humanities | 3 |
| MUSI 2358 | World Music | 3 |
| PHIL 2315 | Introduction to Philosophy | 3 |

| LAB SCIENCE | | 8 |
|-------------|----------------------|---|
| CHEM 1410 | General Chemistry I | 4 |
| CHEM 1420 | General Chemistry II | 4 |

| PUBLIC SPEAKING | | 3 |
|-----------------|-----------------|---|
| COMM 1320 | Public Speaking | 3 |

| MATHEMATICS | | 3 |
|-------------|---------------------------|---|
| MATH 1306 | College Algebra or higher | 3 |

| SOCIAL SCIENCE – SELECT ONE | | 3 |
|-----------------------------|----------------------------------|---|
| BECO 2311 | Principles of Macroeconomics | 3 |
| EDUC 2399 | Child and Adolescent Development | 3 |
| PSYC 1301 | General Psychology | 3 |
| SOCI 1311 | Introduction to Sociology | 3 |
| SOCW 2311 | Introduction to Social Work | 3 |

| US HISTORY OR US GOVERNMENT – SELECT ONE | | 3 |
|--|----------------------------------|---|
| HIST 2311 | American History to 1877 | 3 |
| HIST 2312 | American History since 1877 | 3 |
| POLS 2305 | United States Government | 3 |
| POLS 2306 | Texas State and Local Government | 3 |

| RESEARCH METHODS OR INTERNSHIP | | 2 |
|--------------------------------|----------------------------------|---|
| BIOL 4185 | Bioinformatics Research Capstone | 1 |
| BIOL 4185 | Bioinformatics Research Capstone | 1 |

| FRESHMAN SEMINAR | | 1 |
|------------------|------------------|---|
| UMHB 1101 | Freshman Seminar | 1 |

CHAPEL – 1 to 4 credits

| | |
|-----------|--------|
| UMHB 1002 | Chapel |
|-----------|--------|

Fine Arts Experience – 2 to 8 credits

| | |
|-----------|----------------------|
| UMHB 1005 | Fine Arts Experience |
|-----------|----------------------|

Bioinformatics

62 Hours

| BIOLOGY | | 19 |
|-----------|-----------------------------------|----|
| BIOL 1350 | Biology for Science Majors I | 3 |
| BIOL 1150 | Biology for Science Majors I Lab | 1 |
| BIOL 1360 | Biology for Science Majors II | 3 |
| BIOL 1160 | Biology for Science Majors II Lab | 1 |
| BIOL 3310 | Genetics | 3 |
| BIOL 3110 | Genetics Lab | 1 |
| BIOL 4305 | Cell Biology | 3 |
| BIOL 4105 | Cell Biology Lab | 1 |
| BIOL 4375 | Bioinformatics | 3 |

| MATHEMATICS | | 17 |
|-------------|------------------------------------|----|
| MATH 1430 | Calculus I | 4 |
| MATH 2303 | Statistics | 3 |
| MATH 2320 | Linear Algebra | 3 |
| MATH 2430 | Calculus II | 4 |
| MATH | Mathematics Elective (upper level) | 3 |

| COMPUTER SCIENCE | | 18 |
|------------------|---|----|
| CISC 1305 | Introduction to Computing | 3 |
| CISC 2315 | Discrete Structures of Computer & Eng. Sciences | 3 |
| CISC 2330 | Introduction to Object-Oriented Programming | 3 |
| CISC 3323 | Algorithms & Data Structures | 3 |
| CISC 4327 | Database Theory and Application | 3 |
| CISC | Computer Science Elective (upper level) | 3 |

| CHEMISTRY | | 8 |
|-----------|---------------------|---|
| CHEM 3410 | Organic Chemistry I | 4 |
| CHEM 4430 | Biochemistry | 4 |

Electives

12 Hours

| UPPER LEVEL ELECTIVES | | 3 |
|---|--|---|
| You need 3 additional hours to reach your minimum 36 UL required hrs. | | |

| ELECTIVES | | 9 |
|---|--|---|
| You need 9 additional hours to reach your minimum 120 required hrs. | | |

Total Hours

| | |
|--|------------|
| Academic Core for B.S. | 46 |
| Biology | 19 |
| Mathematics | 17 |
| Computer Science | 18 |
| Chemistry | 8 |
| Upper Level Electives | 3 |
| Electives | 9 |
| Total hours required for graduation | 120 |

Additional Graduation Requirements

| | |
|---|-----|
| Minimum Upper Level hours | 36 |
| Minimum hours taken at UMHB | 30 |
| Minimum Upper Level hours taken at UMHB | 24 |
| Minimum cumulative GPA | 2.0 |

Bioinformatics (B.S.)

2025-2026 Academic Catalog, Bachelor of Science – Bioinformatics – DEGREE SEQUENCE

FRESHMAN FALL **15 Hours**

| | | |
|----------------|------------------------------|---|
| BIOL 1350/1150 | Biology for Science Majors I | 4 |
| CHEM 1410 | General Chemistry I | 4 |
| MATH 1306 | College Algebra | 3 |
| ENGL 1321 | Rhetoric & Composition I | 3 |
| UMHB 1101 | Freshman Seminar | 1 |
| UMHB 1002 | Chapel | 0 |
| UMHB 1005 | Fine Arts Experience | 0 |

FRESHMAN SPRING **15 Hours**

| | | |
|----------------|-------------------------------|---|
| BIOL 1360/1160 | Biology for Science Majors II | 4 |
| CHEM 1420 | General Chemistry II | 4 |
| CISC 1305 | Intro to Computing | 3 |
| ENGL 1322 | Rhetoric & Composition II | 3 |
| EXAC | Activity Course | 1 |
| UMHB 1002 | Chapel | 0 |
| UMHB 1005 | Fine Arts Experience | 0 |

SOPHOMORE FALL **15 Hours**

| | | |
|----------------|--------------------------------------|---|
| BIOL 3310/3110 | Genetics | 4 |
| MATH 1430 | Calculus I | 4 |
| CHEM 3410 | Organic Chemistry I | 4 |
| CISC 2330 | Intro to Object-Oriented Programming | 3 |
| UMHB 1002 | Chapel | 0 |
| UMHB 1005 | Fine Arts Experience | 0 |

SOPHOMORE SPRING **15 Hours**

| | | |
|-----------|--|---|
| COMM 1320 | Public Speaking | 3 |
| CISC 2315 | Discrete Structures of Comp. & Eng. Sci. | 3 |
| MATH 2320 | Linear Algebra | 3 |
| | Fine Arts | 3 |
| | Social Science | 3 |
| UMHB 1002 | Chapel | 0 |
| UMHB 1005 | Fine Arts Experience | 0 |

JUNIOR FALL **15 Hours**

| | | |
|------------|---------------------------------|---|
| MATH 2430 | Calculus II | 4 |
| CHEM 4430 | Biochemistry | 4 |
| CISC Upper | Level Computer Science Elective | 3 |
| MATH 2303 | Statistics | 3 |
| EXAC | Activity Course | 1 |
| UMHB 1005 | Fine Arts Experience | 0 |

JUNIOR SPRING **16 Hours**

| | | |
|----------------|----------------------------------|---|
| CISC 4327 | Database Theory & Application | 3 |
| BIOL 4305/4105 | Cell Biology | 4 |
| ENGL | Literature | 3 |
| CISC 3323 | Algorithms & Data Structures | 3 |
| MATH | Upper Level Mathematics Elective | 3 |
| UMHB 1005 | Fine Arts Experience | 0 |

SENIOR FALL **15 Hours**

| | | |
|-----------|----------------------------------|---|
| BIOL 4185 | Bioinformatics Research Capstone | 1 |
| | World Cultures | 3 |
| BIOL 4375 | Bioinformatics | 3 |
| | Elective | 5 |
| CSBS 1311 | Engaging the Old Testament | 3 |
| UMHB 1005 | Fine Arts Experience | 0 |

SENIOR SPRING **14 Hours**

| | | |
|-----------|----------------------------------|---|
| BIOL 4185 | Bioinformatics Research Capstone | 1 |
| | Upper Level Elective | 3 |
| CSBS 1312 | Engaging the New Testament | 3 |
| | Elective | 4 |
| | US History or Government | 3 |
| UMHB 1005 | Fine Arts Experience | 0 |

Total Credit Hours: 120