The University of Texas Rio Grande Valley

# Bachelor of Science (BS) Mathematics

*Concentration: Applied Mathematics*

**2022-2023**

| | | H | Course # | Course Title | Min. Grade | GEC | Prerequisite | Additional Notes |
|---|---|---|---|---|---|---|---|---|
| FIRST YEAR | FALL | 3 | Choose 1 | Communication (Core) | C | 010 | For all 010 courses: Satisfactory scores on English portion of ACT test and TSI examination or ENGL 0301. For ENGL 1302, a grade of "C" or better in ENGL 1301. | See General Education Core for more details **Options: ENGL 1301** |
| | | 4 | MATH 2413 | Calculus I (Core) | C | 020 | MATH 2412 with a grade of 'C' or better; or passing the Precalculus Exemption Test administered by the Department of Mathematics. | **Prerequiste for MATH 2412:** MATH 1314/1414 with a grade of "C" or better or passing Exemption Test administered by Department of Mathematics |
| | | 3 | Choose 1 | American History (Core) | | 060 | | See General Education Core for more details. **Options: HIST 1301 or HIST 2327** |
| | | 3 | CSCI 1380 | Computer Science I (Core) | | 090 | Concurrent enrollment or credit for MATH 1314 or higher level mathematics course. | |
| | | 3 | Choose 1 | Creative Arts (Core) | | 050 | | See General Education Core for course options. |
| | | | UNIV | 1301 Learning Framework<br>1101 Academic and Career Success<br>1001 Living and Working by Design | | | | As required, based on credit hours earned, TSI status, High school rank, major declaration |
| | | **16** | **Semester Total Hours** | | | | | |
| | SPRING | 3 | Choose 1 | Communication (Core) | C | 010 | For all 010 courses: Satisfactory scores on English portion of ACT test and TSI examination or ENGL 0301. For ENGL 1302, a grade of "C" or better in ENGL 1301. | See General Education Core for more details **Options: ENGL 1302 or ENGL 1305** |
| | | 4 | MATH 2414 | Calculus II | C | | MATH 2413 with a grade of 'C' or better. | |
| | | 3 | MATH 2318 | Linear Algebra | C | | MATH 2413 with a grade of 'C' or better. | |
| | | 3 | Choose 1 | American History (Core) | | 060 | | See General Education Core for more details. **Options: HIST 1302 or HIST 2328** |
| | | 3 | ECON 1301 or ECON 2301 | Introduction to Economics or Principles of Macroeconomics (Core) | | 080 | | |
| | | **16** | **Semester Total Hours** | | | | | |

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| SECOND YEAR | FALL | 4 | MATH 2415 | Calculus III | C | | MATH 2414 with a grade of 'C' or better. | |
| | | 3 | MATH 3341 | Differential Equations | C | | MATH 2414 with a grade of 'C' or better. | |
| | | 3 | POLS 2305 | U.S. Federal Government & Politics (Core) | | 070 | | See General Education Core for more details |
| | | 4 | PHYS 2425 | Physics for Scientists and Engineers I (Core) | | 030/090 | MATH 2413 and concurrent enrollment in MATH 2414. | |
| | | 3 | Choose 1 | Language, Philosophy & Culture (Core) | | 040 | | See General Education Core for course options. |
| | | **17** | **Semester Total Hours** | | | | | |
| | SPRING | 3 | MATH 3343 | Introduction to Mathematical Software | C | | MATH 2414 and MATH 2318 with a grade of 'C' or better. | |
| | | 3 | MATH 3350 | Introduction to Mathematical Proof | C | | MATH 2318 with a grade of 'C' or better. | |
| | | 3 | POLS 2306 | Texas Government & Politics (Core) | | 070 | | See General Education Core for more details |
| | | 1 | Choose 1 | Integrative/Experiential Learning Option (Core) | | 090 | | See General Education Core for course options. |
| | | 4 | PHYS 2426 | Physics for Scientists and Engineers II (Core) | | 030/090 | PHYS 2425. | |
| | | **14** | **Semester Total Hours** | | | | | |

**CORE: The 2022-2023 list of core courses can be found in the 2022-2023 Undergraduate Catalog: www.utrgv.edu > See 'Core Curriculum'**

**Symbols Key**

**Critical ('!')**: sequence sensitive course.
**Minimum Grade**: A - Excellent; B - Good; C - Satisfactory; D - Below Average; CR - Credit; P - Passing; S - Satisfactory.

**General Education Core (GEC) Sections:** 010 - Communication; 020 - Mathematics; 030 - Life and Physical Sciences; 040 - Language, Philosophy & Culture; 050 - Creative Arts; 060 - American History; 070 - Government/Political Science; 080 - Social and Behavioral Sciences; 090 - Applied Communication and Literacies; 090 - Humanities; 090 - Leadership; 090 - Science Labs; 090 - Interdisciplinary ; 090 - Technologies; 090 - Language Diversity & Writing.

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|---|---|---|---|---|---|---|---|---|
| THIRD YEAR | FALL | 3 | MATH 3363 | Modern Algebra I | C | | MATH 2318 and MATH 3350, each with a grade of 'C' or better. | |
| | | 3 | MATH 3352 | Modern Geometry I | C | | MATH 2318 with a grade of 'C' or better. | |
| | | 3 | STAT 3301 | Applied Statistics | C | | MATH 2413 with a grade of 'C' or better. | |
| | | 3 | MATH 3345 | Linear Optimization | C | | MATH 2318 with a grade of 'C' or better. | |
| | | 3 | X3XX 43XX | Free Elective | | | | |
| | | **15** | **Semester Total Hours** | | | | | |
| | SPRING | 3 | MATH 3372 | Real Analysis I | C | | MATH 2414 and MATH 3350, each with a grade of 'C' or better. | |
| | | 3 | STAT 3337 | Probability and Statistics | C | | MATH 2414 with a grade of 'C' or better. | |
| | | 3 | MATH 3349 | Numerical Methods | C | | MATH 2414 and MATH 3343, each with a grade of 'C' or better. | |
| | | 3 | MATH 4344 | Boundary Value Problems | C | | MATH 3341 or MATH 2321 with a grade of 'C' or better. | |
| | | 3 | X3XX 43XX | Free Elective | | | | |
| | | **15** | **Semester Total Hours** | | | | | |

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| FOURTH YEAR | FALL | 3 | MATH 4390 | Mathematics Project | C | | Pre- or co-requisite in MATH 2415, STAT 3337, MATH 3341, MATH 3352, MATH 3363, MATH 3372. | |
| | | 3 | MATH 3361 | Applied Discrete Mathematics | C | | MATH 2318 with a grade of 'C' or better. | |
| | | 3 | MATH 4342 | Complex Variables | C | | MATH 2415 with a grade of 'C' or better. | |
| | | 3 | X3XX-43XX | Free Elective | | | | |
| | | 3 | X3XX-43XX | Free Elective | | | | |
| | | **15** | **Semester Total Hours** | | | | | |
| | SPRING | 3 | MATH 3347 | Elementary Cryptology | C | | MATH 2318 with a grade of 'C' or better. | |
| | | 3 | MATH 4346 | Integral Transforms | C | | MATH 2415 and either MATH 3341 or MATH 2321, both with a grade of 'C' or better. | |
| | | 3 | X3XX-43XX | Free Elective | | | | |
| | | 3 | X3XX-43XX | Free Elective | | | | |
| | | **12** | **Semester Total Hours** | | | | | |

**Major Graduation Requirements:**

The student must complete all these course requirements and all MATH and MATE courses with grades of "C" or better and have with a GPA of 2.5 or better.

**120 TOTAL HOURS**

**(42) Advanced minimum credit hours**

Approved: Friday, Decemer 9, 2022

Revised: Sunday, November 13, 2022