

**CHECK SHEET FOR THE B.S. DEGREE IN MATHEMATICS (AY 2023 - 24)**

**DEPARTMENT OF MATHEMATICS**

University of Central Arkansas

**PURE MATHEMATICS TRACK (45 HRS)**

**Core Courses (21 Hours)**

| COURSE NO. | COURSE                          | CREDIT HRS | PREREQUISITE  | SEMESTER OFFERED |
|------------|---------------------------------|------------|---|------------------|
| MATH 1496  | Calculus I                      | 4          | C or better in MATH 1390 and MATH 1392; or C or better in MATH 1486; OR equivalent. | Fall, Spring     |
| MATH 1497  | Calculus II                     | 4          | C or better in MATH 1496  | Fall, Spring     |
| MATH 2341  | Mathematical Computation        | 3          | MATH 1497 or concurrent enrollment in MATH 1497                                     | Fall             |
| MATH 2471  | Calculus III                    | 4          | C or better in MATH 1497  | Fall, Spring     |
| MATH 3311  | Statistical Methods             | 3          | MATH 2341, or MATH 1496 & CSCI 1470, or consent of instructor                       | Fall, Spring     |
| MATH 3320  | Linear Algebra [Upper Core : I] | 3          | MATH 1497 or 2330   | Fall, Spring     |

**Required Courses (18 hours)**

|           |  |   |           |                    |
|-----------|--|---|-----------|--------------------|
| MATH 2335 | Transition to Advanced Math                        | 3 | MATH 1497 | Spring             |
| MATH 3331 | Ordinary Differential Equations I [Upper Core : C] | 3 | MATH 1497 | Spring             |
| MATH 3360 | Introduction to Rings and Fields                   | 3 | MATH 2335 | Fall               |
| MATH 3362 | Introduction to Group Theory                       | 3 | MATH 3320 | Alternating Spring |
| MATH 4362 | Advanced Calculus I [Upper Core : Z]               | 3 | MATH 2471 | Alternating Fall   |
| MATH 4371 | Intro to Probability Theory [Upper Core : R]       | 3 | MATH 1497 | Fall               |

**Choose 2 Electives (6 Hours)**

|           |   |   |  |           |
|-----------|---|---|--|-----------|
| MATH 3381 | Data Cleaning   | 3 | MATH 3311 or consent of instructor                     | Fall      |
| MATH 3391 | Non-Parametric Statistics                                     | 3 | MATH 3311 or consent of instructor                     | Fall      |
| MATH 3392 | Multivariate Analysis   | 3 | MATH 3311 and MATH 3320 or consent of instructor       | Fall      |
| MATH 4305 | Ordinary Differential Equations II                            | 3 | MATH 3320 and MATH 3331                                | Fall      |
| MATH 4306 | Modeling and Simulation [Upper Core : Z]                      | 3 | MATH 2341, MATH 3331, MATH 4371, and MATH 3320         | Spring    |
| MATH 4315 | Partial Differential Equations                                | 3 | MATH 2471, MATH 3331 and MATH 2441                     | Fall      |
| MATH 4316 | Fundamentals of Applied Math for Fluid and Granular Materials | 3 | MATH 4315  | On Demand |
| MATH 4330 | Mathematical Modeling in Biology                              | 3 | MATH 3331 and MATH 2441 (C or better in both)          | On Demand |
| MATH 4340 | Numerical Methods   | 3 | MATH 3320 and MATH 2441 (C or better in both)          | Spring    |
| MATH 4363 | Advanced Calculus II  | 3 | MATH 4362  | On Demand |
| MATH 4372 | Intro to Statistical Inference                                | 3 | MATH 2441 and MATH 4371                                | Spring    |
| MATH 4373 | Regression Analysis   | 3 | MATH 3311 (C grade or higher) or consent of instructor | Fall      |
| MATH 4374 | Intro to Stochastic Processes                                 | 3 | MATH 4371 or Consent of instructor                     | Fall      |
| MATH 4375 | Introduction to Topology I                                    | 3 | Consent of instructor                                  | On Demand |
| MATH 4385 | Complex Analysis  | 3 | MATH 2471  | On Demand |
| MATH 4391 | Machine Learning  | 3 | MATH 4373 or consent of instructor                     | Spring    |

**OTHER REQUIREMENTS**

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| <ul style="list-style-type: none"> <li>• MINOR Required</li> <li>• Must complete 120 semester hours including 38 hours of General Education</li> </ul> | <ul style="list-style-type: none"> <li>• GPA of 2.00 or better in each of the major and minor fields</li> <li>• Must have 40 hours of upper level (3000 or 4000) courses</li> <li>• At least 15 hours of the major must be earned</li> </ul> |
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