

RECOMMENDED PATHWAYS FOR HIGH SCHOOL MATHEMATICS IN MONTANA

This document was developed to provide a formal recommendation from the Montana Office of Public Instruction regarding pathways that high school students in Montana may elect to follow. These pathways are developed to address questions such as:

What does the research say students should take for high school math?

I am choosing between two different careers, how are the courses and education required, different between the two?

I really like math, but I am not planning to go to college. What classes can I take that will still prepare me for my future?

I want my child to attend a Montana college or university. What courses do they need to take in High School?

What courses should I take for my chosen career?

Do I have to take Algebra 2 to go to college?

Accommodation statement for publications

Please note that this version is not ADA compliant. An ADA compliant version of the pathways document is available within Appendix H of the K-12 Guidance Document. The OPI is committed to providing reasonable accommodations to people with disabilities. If you need a reasonable accommodation, require an alternate format, or have questions concerning accessibility, please contact the OPI ADA Coordinator at 406-444-3161, opiada@mt.gov,

TTY 406-444-0235.



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WHERE WILL YOUR CAREER TRAINING COME FROM?

4-Year College or University

Algebra I with Prob. & Geometry with Data Analysis

OR

Integrated Math I & II

Algebra II with Statistics

OR

Integrated Math III

Courses Aligned with Career Interests

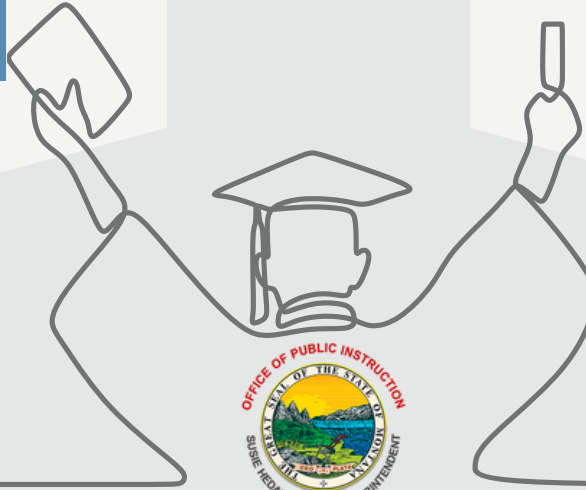
2-Year College, Trade-School, Military, Apprenticeship, or On-The-Job Training

Algebra I w/ Prob. & Geometry w/ Data Analysis

OR

Integrated Math I & II

Courses Aligned with Career Interests



HIGH SCHOOL MATH

Student Pathway Overview

CORE COURSES

Algebra 1 with Probability
Geometry with Data Analysis **OR** Integrated Mathematics I
Integrated Mathematics II

CORE PLUS COURSE

Algebra II with Statistics
OR
Integrated Math III

QUANTITATIVE REASONING

Dual Credit M105
OR
District Offering

TECHNICAL MATH

Dual Credit M111
OR
District Offering

INTRO TO DATA SCIENCE

District Offering

OTHER

Dual Credit
OR
District Offering

STATISTICS

AP Statistics, Dual
Credit STAT216 or
District Offering

PRE-CALC

AP Pre-Calculus, Dual
Credit M151, or District
Offering

CALCULUS

AP Calculus, Dual
Credit M171, or
District Offering

All Montana High school students **are required** to complete courses that address the Montana High School Mathematics Core Content Standards.

To move *down* in this diagram, students must complete any prerequisite courses on the preceding row, indicated by the solid black lines. Students may move *horizontally* across each row, or elect to take courses from a preceding row as appropriate and in accordance with district policies.



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INDUSTRY AND TRADES

Recommended Pathway

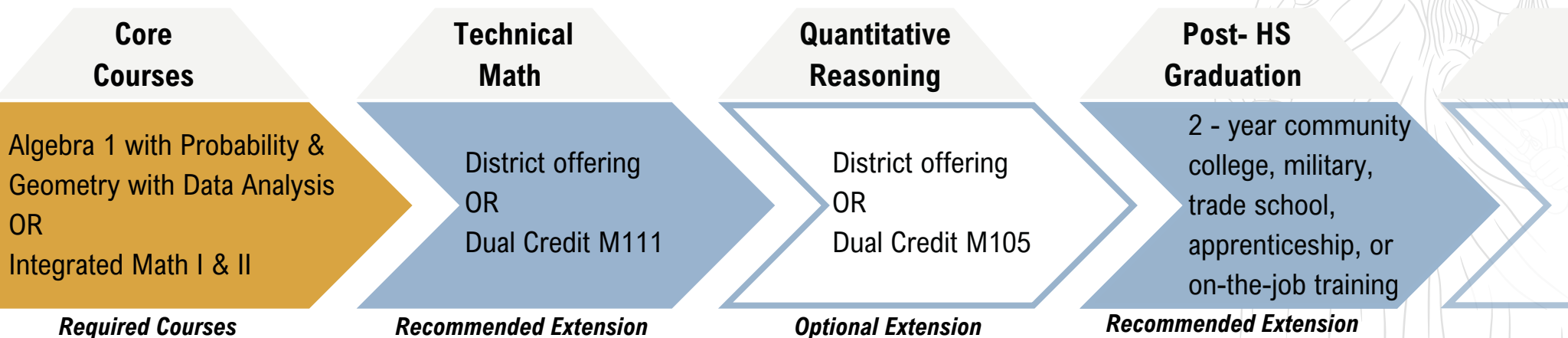


POSSIBLE CAREER INTERESTS:

Students who would benefit from this pathway might choose careers such as, but not limited to, the following:

Aviation Maintenance	Automotive or Diesel Mechanic
Boiler Repair	Plumber
Electrician	Ranch Management
HVAC Technician	Welder
Construction	Landscaper

*It is recommended that students verify with their school counselor and chosen program to confirm graduation requirements before enrolling in any courses beyond the core. Note that this pathway meets Montana High School Graduation requirements, but **does not** meet the requirements for admission to 4-year universities.*





COMMUNITY SERVICES

Recommended Pathway

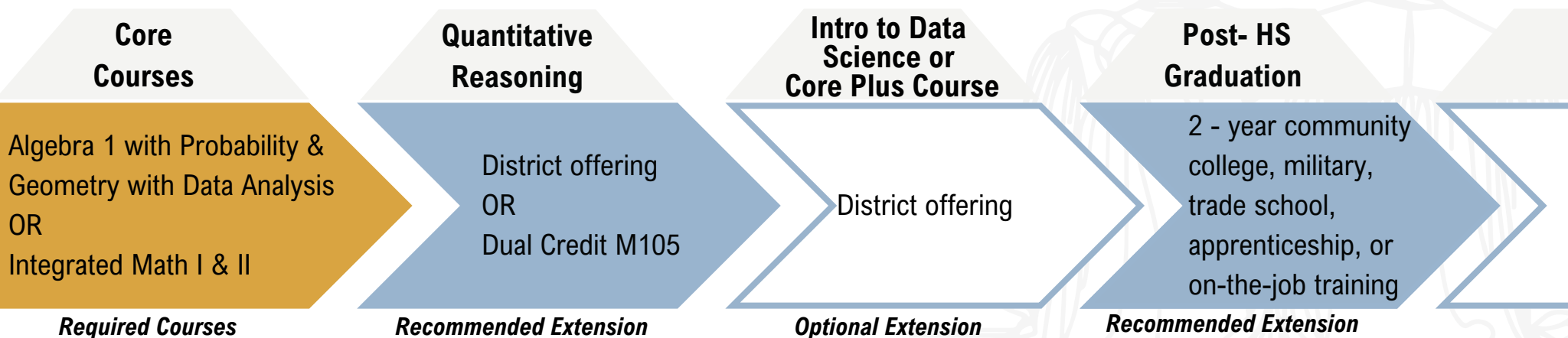


POSSIBLE CAREER INTERESTS:

Students who would benefit from this pathway might choose careers such as, but not limited to, the following:

Cosmetologist	Certified Nursing Assistant
Licensed Practical Nurse	Emergency Medical Technician
Dental Hygienist	Veterinary Technician
Radiology Technician	Doula
Firefighter	Law Enforcement Officer
Chef	Child Care Worker

*It is recommended that students verify with their school counselor and chosen program to confirm graduation requirements before enrolling in any courses beyond the core. Note that this pathway meets Montana High School Graduation requirements, but **does not** meet the requirements for admission to 4-year universities.*





HUMANITIES

Recommended Pathway

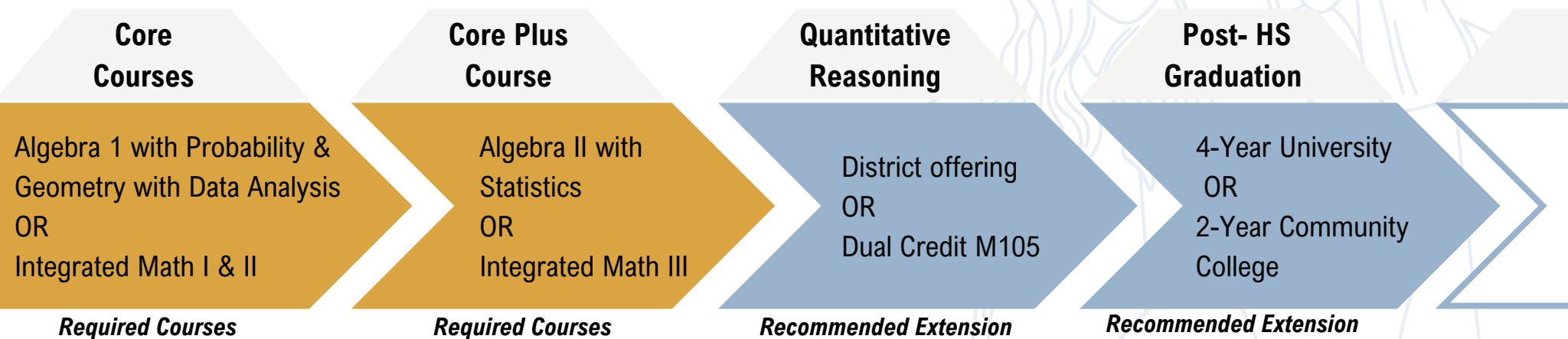


POSSIBLE CAREER INTERESTS:

Students who would benefit from this pathway might choose careers such as, but not limited to, the following:

Teacher	Social Worker
Graphic Designer	Historian
Artist	Writer
Art History	Human Rights Advocate
Speech Pathologist	Sign Language Interpreter

It is recommended that students verify with their school counselor and chosen program to confirm graduation requirements before enrolling in any courses beyond the core. Note that careers within this pathway often require a 2 or 4-year degree.





DATA-DRIVEN PROFESSIONALS

Recommended Pathway



POSSIBLE CAREER INTERESTS:

Students who would benefit from this pathway might choose careers such as, but not limited to, the following:

Psychologist	Journalist
Registered Nurse	Marketing Executive
Physician Assistant	Entrepreneur
Political Scientist	Business Owner
Human Resource Manager	Accountant
Criminologist	Lawyer

It is recommended that students verify with their school counselor and chosen program to confirm graduation requirements before enrolling in any courses beyond the core. Students on this pathway will need to earn a 4-year degree and additional math courses may be required.

Core Courses

Algebra 1 with Probability & Geometry with Data Analysis
OR
Integrated Math I & II

Required Courses

Core Plus Course

Algebra II with Statistics
OR
Integrated Math III

Required Courses

Statistics

Credit-Bearing Courses such as AP Stats or Dual Credit STAT216

Recommended Extension

Post-HS Graduation

4-Year University

Recommended Extension

Updated: July, 2025



STEM-FOCUSED CAREERS

Recommended Pathway

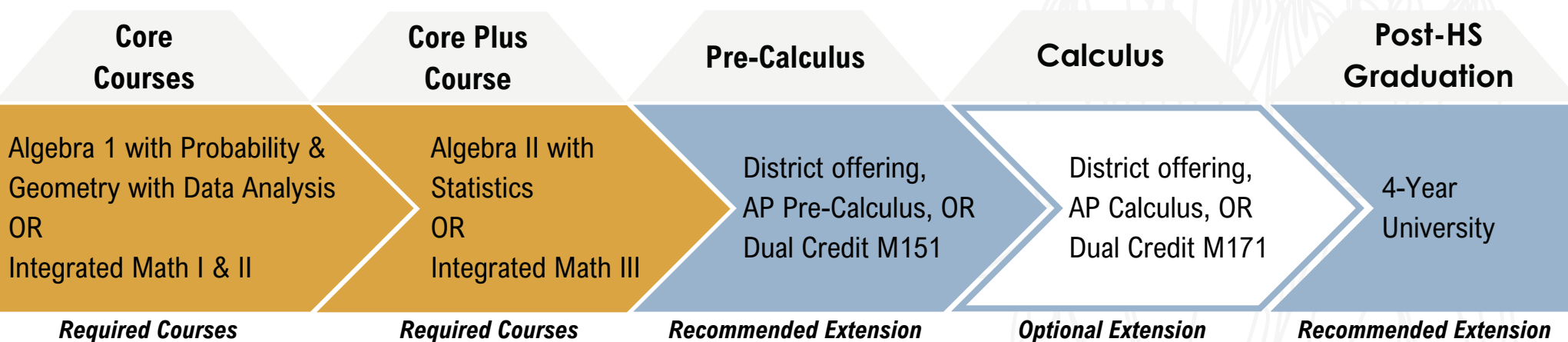


POSSIBLE CAREER INTERESTS:

Students who would benefit from this pathway might choose careers such as, but not limited to, the following:

Doctor	Math Teacher
Veterinarian	Forrester
Engineer	Psychiatrist
Scientist	Wildlife Biologist
Software Developer	Agricultural Market Analyst
Statistician	Environmental Technician

It is recommended that students verify with their school counselor and chosen program to confirm graduation requirements before enrolling in any courses beyond the core. Students on this pathway will need to earn a 4-year degree and additional math courses may be required.



AUTHORS:

This document was developed by members of the high school mathematics content standards development Task Force including Cliff Bara, Marisa Graybill, Janice Novotny, and Fredreck Peck, and along with employees of the Office of Public Instruction including Katrina Engeldrum (Math Instructional Coordinator) and Aimee Konzen (Professional Learning Manager)

ADDITIONAL CONSIDERATIONS:

This document was developed to provide guidance to students, families, educators, and partners in student success around identifying the best pathway through high school mathematics for each student given their career interests. Every student has the opportunity for their career to be supported through further mathematics education, however, research shows that there is no singular pathway that every aspiring professional should follow (Regional Educational Laboratory Northwest, 2023). Research further shows that students are best supported by four years of mathematics instruction (Regional Educational Laboratory Northwest, 2023). This is why each career pathway offers four years' worth of courses. These are the research-based recommendations of the authors, however, students in Montana are only required to complete the courses mandated by their school district.



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