

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?

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

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?

The Montana Office of Public Instruction is pleased to offer this vital resource to schools, families, students, and other partners in student success. However, it must be clearly communicated that some of the language utilized within this document is in reference to the proposed Montana Mathematics Standards, which as of the drafting of this document are pending review and approval by the Board of Public Education. It is therefore probable that this document will be revised as the board makes its determinations. Please ensure that you are utilizing the latest draft at all times.



WHERE WILL YOUR CAREER TRAINING COME FROM?

4-Year College or University

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

OR

Integrated Math I & II

Algebra II with Statistics

OR

Integrated Math III

Courses Aligned with Career Interests

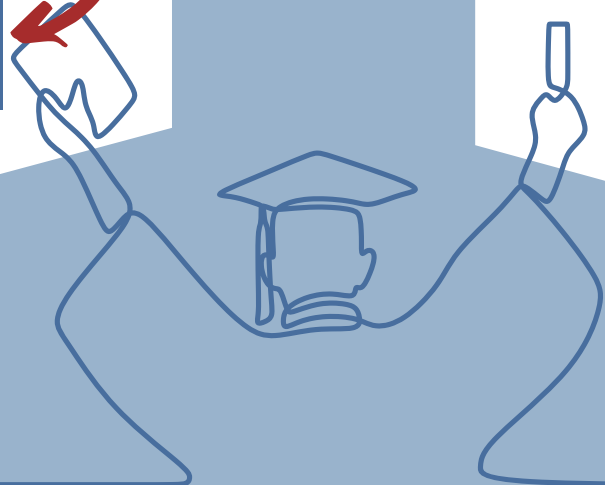
2-Year College, Trade-School, Military, Apprenticeship, or On-The-Job Training

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

OR

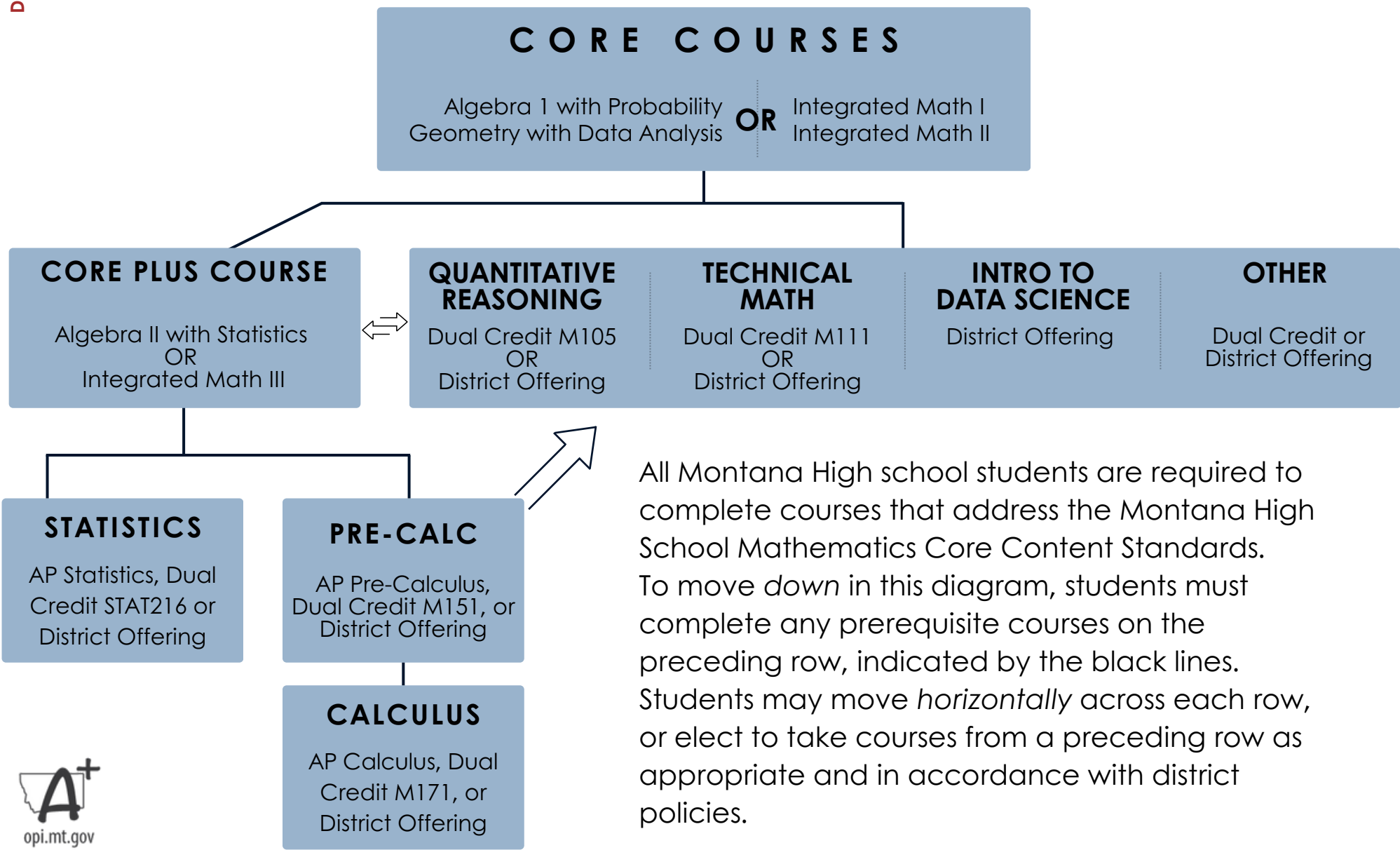
Integrated Math I & II

Courses Aligned with Career Interests



HIGH SCHOOL MATH

Student Pathway Overview



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 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.



INDUSTRY AND TRADES



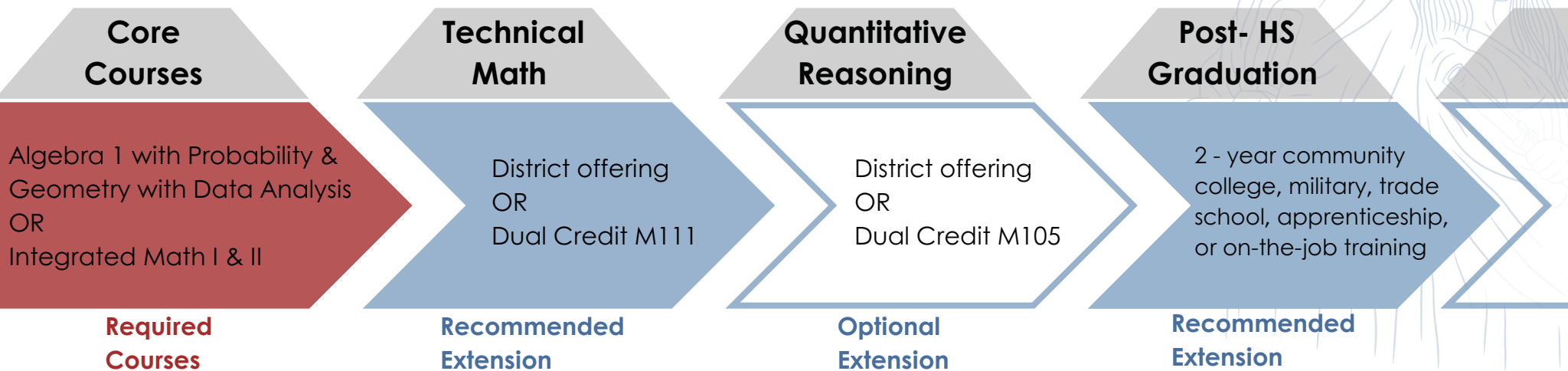
Recommended Pathway

POSSIBLE CAREER INTERESTS:

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

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

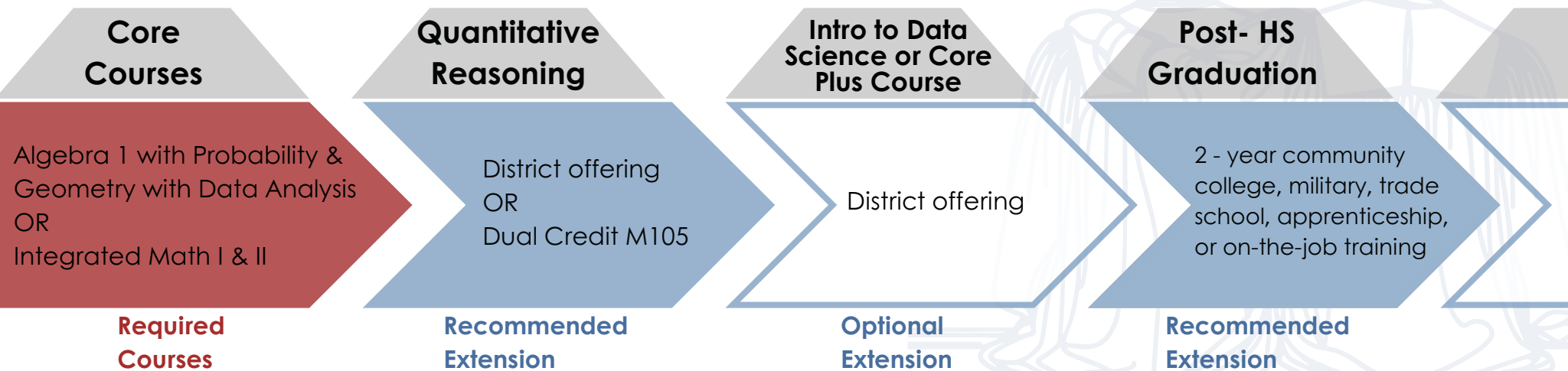


POSSIBLE CAREER INTERESTS:

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

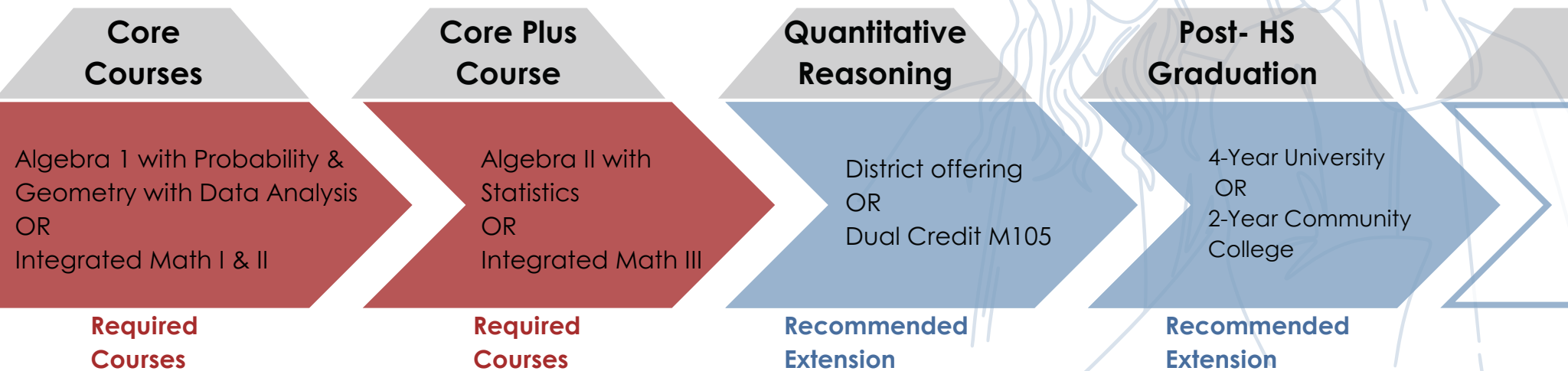
Recommended Pathway

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 4-year degree.



DATA-DRIVEN PROFESSIONALS



Recommended Pathway

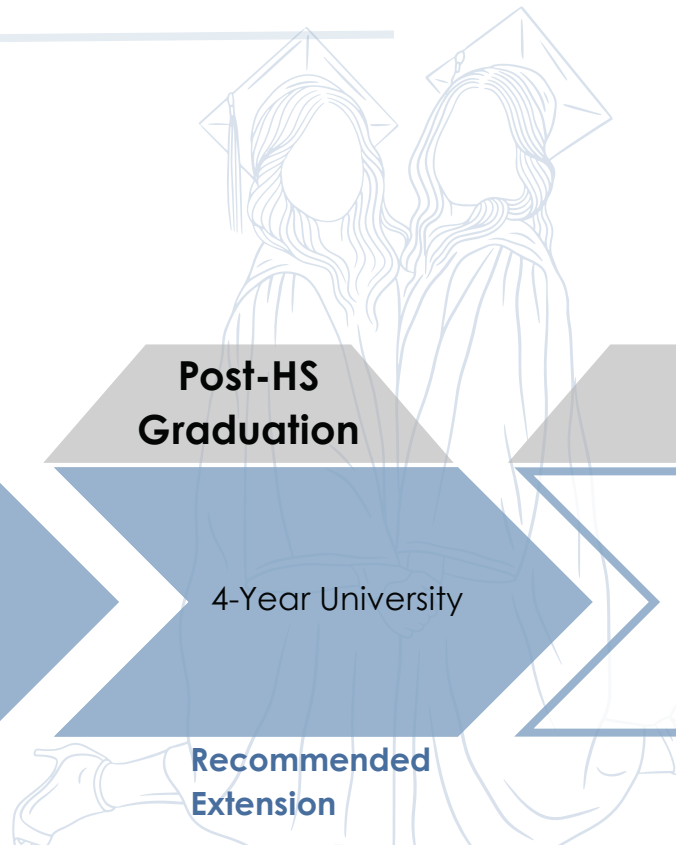
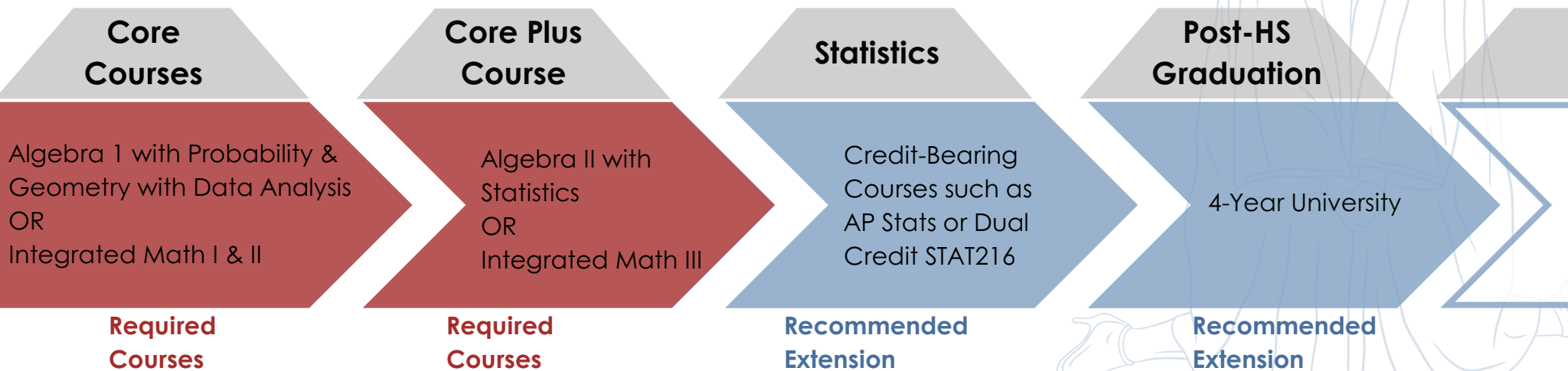
POSSIBLE CAREER INTERESTS:

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 attain a 4-year degree and additional math courses may be required.





STEM-FOCUSED CAREERS



Recommended Pathway

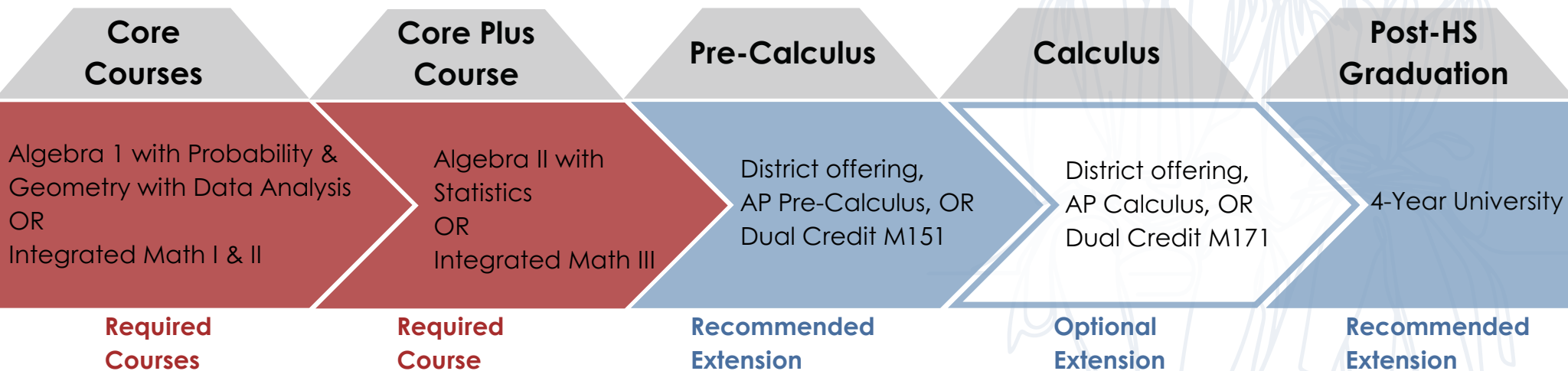
POSSIBLE CAREER INTERESTS:

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 attain 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.

REFERENCES:

Montana Digital Academy. (2024, May 15). *Current Offerings, High School Dual Credit*. Montana Digital Academy. <https://montanadigitalacademy.org/programs/dual-credit/>

Montana Digital Academy. (2024, May 15). *High School Advanced Placement*. Montana Digital Academy. <https://montanadigitalacademy.org/programs/dual-credit/>

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Regional Educational Laboratory Northwest. (2023, May 25). *Handout C: Literature Scan - High School Mathematics Pathways*. <https://opi.mt.gov/LinkClick.aspx?fileticket=0IGFThaZqHw%3d&portalid=182>