2023-24 CORE MATH FLOWCHART

No Entry Restriction

Introductory Algebra M099 (5) No degree credit — S

College Intermediate Algebra or MPA Required

P — Math Reasoning M107 (4) and/or M108 (4)

P — Functions and Algebraic Methods M112 (5) — S

Teach P-3 Mathematics I M371 (4) | Teach K-8 Mathematics I M381 (4) — E

Algebra for Elem. Teachers M111 (5) — E

MPA or Math 112 Required

B — Business Algebra M156 (4)

Intro Statistics M240 (4)

Precalculus I M114 (5) — S

Math and Art M160 (4)

Previous WWU Course Only

Precalculus II M115 (5) — S

Teach P-3 Mathematics II & III M372 (4) & 373 (4) | Teach K-8 Mathematics II & III M382 (4) & 383 (4) — E

MPA or Suitable Precalculus Course or AP Score Required

B — Business Calculus M157 (4)

Note: M124/134/138 or AP Calculus 3-5 fulfills M157

Calculus I M124 (5) — S ← Accel. Precalculus M118 (5) — S

MPA and Instructor Permission Required

S — Honors Calculus I M134 (5)

Previous Course or AP Score Required

Calculus II M125 (5) or M135 (5) — S

Accel. Calculus M138 (5) — S

Multivariable Calculus M224 (5) — S

Legend

- **B** Business Mathematics Sequence
- **E** Elementary Education Sequence
- **P** Partial GUR Components: 107, 108, 112
- **S** STEM Sequence

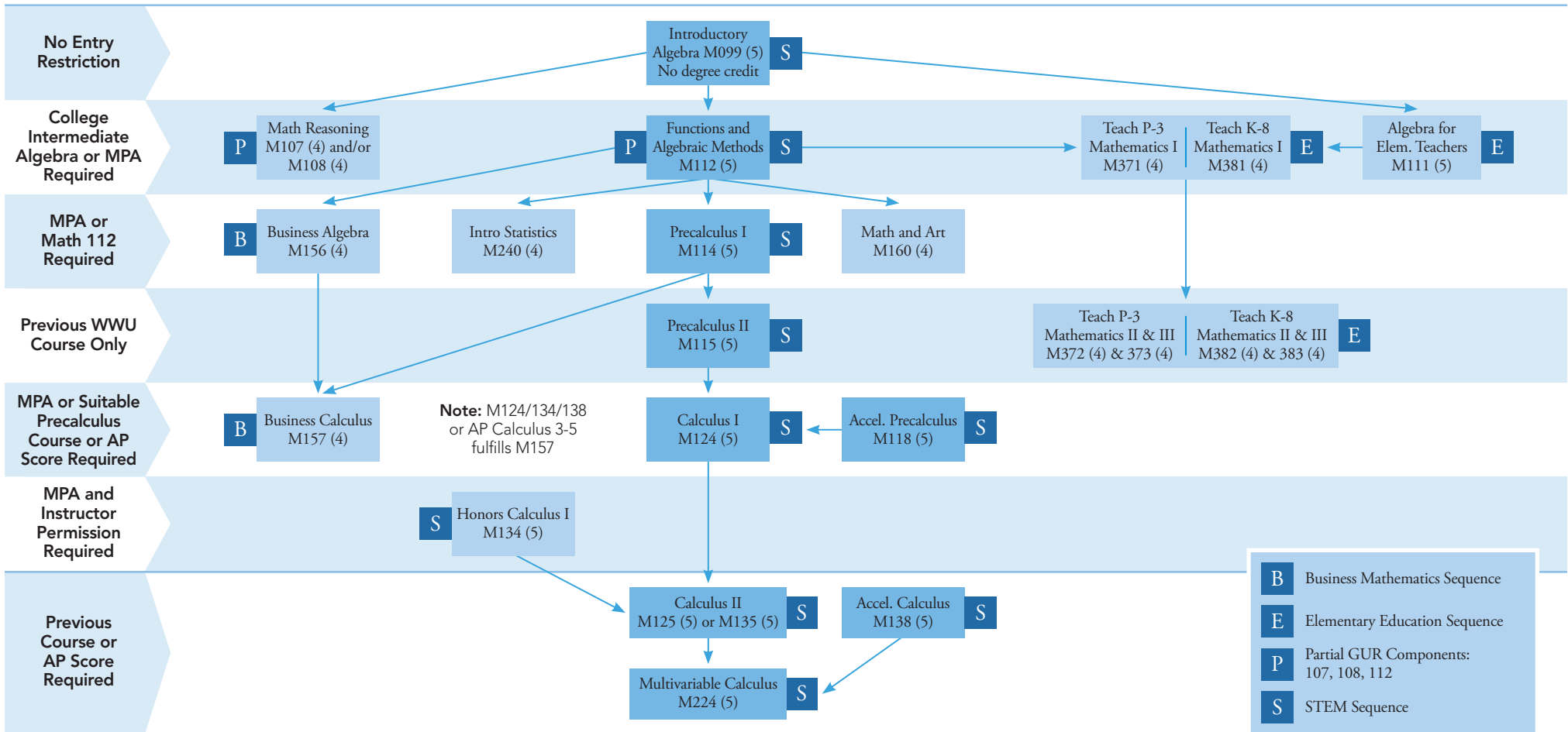
Department of Mathematics

360-650-3785
math.department@wwu.edu
Bond Hall 202

WWU is an equal opportunity institution. To request this document in an alternate format, please contact advising@wwu.edu.

WESTERN WASHINGTON UNIVERSITY
MAKE WAVES.

WHO SHOULD TAKE THE MPA

Students who do not qualify for an exception and need to enroll in a WWU math course.

USED FOR ENTRY INTO

Math 107, 108, 109, 111, 112, 114, 118, 124, 156, 157, 160, 240, 371, 381

Students may use an appropriate MPA score to serve as a prerequisite to register for selected classes in the following departments: ASTR, BIOL, CHEM, CSCI, DSCI, ECON, ENRG, ENVS, ESCI, GEOL, HNRS, PHYS, and SCED.

Check Timetable (catalog.wwu.edu) for detailed course prerequisites and MPA eligibility scores.

Math Placement Assessment (MPA) Exceptions

- MPA not required but strongly recommended for Math 099.
- Eligible for Math 107, 108, 111, 112, 371 or 381 via college credit for Intermediate Algebra with at least C-. Math 371 & 381 require a C or better.
- Eligible for Math 240 via college credit for Precalculus I (PC1) with at least C+.
- Eligible for Math 157 via college credit for Precalculus I (PC1) with at least C+.
- Eligible for Math 124 via college credit for 2nd/final course in Precalculus (PC2) with at least C+.
- MPA is waived for students who scored two or higher on the AP Calculus Exam, but students seeking admission to Math 134 MUST take the MPA.

Math Placement Eligibility Scores:

Course	MPA Score
Math 099	0-24
Math 107, 108	25
Math 111	30
Math 112 with 109	30-34
Math 112	35
Math 240	35
Math 371, 381	45
Math 114	55
Math 156	55
Math 160	55
Math 157	65
Math 118	70
Math 124	80-100

WWU Course	Prerequisite	QSR Status:	Description:	Notes and serves as a prerequisite for:
Math 099: Introductory Algebra (5 credits for financial aid purposes)	None	Does not fulfill any portion of the QSR	Gain skills working with algebraic expressions and equations in order to prepare for Math 107, 108, 111 or 112.	Preparation for Math 107, 108, 111 or 112.
Math 107: Mathematical Reasoning and Its Applications (4)	Math 099 or MPA 25 or higher	Partially fulfills QSR	Reading quantitative information, reasoning, personal finance, data display and summary, assessing risk; quantitative decisions.	Math 107 does not serve as a prerequisite for any further math courses.
Math 108: Mathematical Applications and Reasoning (4)	Math 099 or MPA 25 or higher	Partially fulfills QSR	Assessing quantitative information; dimensional analysis and proportional reasoning; simple mathematical models; graphical representations; geometry; voting.	Math 108 does not serve as a prerequisite for any further math courses.
Math 109: Support Topics for Math 112 (2)	MPA 30-34; Co-requisite Math 112	Does not fulfill any portion of the QSR	Support for success in Math 112, with a focus on algebraic concepts, skills and reasoning, and using external resources. Intended for students with a STEM or Business interest.	Math 109 is not a prerequisite for any courses. It supports successful completion of Math 112.
Math 111: Functions and Algebraic Methods for Teachers (5)	Math 099 MPA 30 or higher	Does not fulfill any portion of the QSR	For preservice elementary teachers; algebraic problem solving and modeling; linear, quadratic and exponential functions and inequalities.	Math 371, 381 This course must be passed with a C or higher to serve as a prerequisite. Math 111 does not serve as a prerequisite for math courses other than 371 or 381.
Math 112: Functions and Algebraic Methods (5)	Math 099 MPA 35 or higher	Partially fulfills QSR	Pattern recognition and generalization, building mathematical models & problem solving are emphasized.	Math 114, 156, 160, 240, 371, 381 This course must be passed with a C– or higher to serve as a prerequisite. Math 371 or 381 requires a C or higher.
Math 114: Precalculus I (5)	Math 112 MPA 55 or higher	QSR in full	Data analysis, functions as mathematical models, functions and their graphs.	Math 115, 157 This course must be passed with a C– or higher to serve as a prerequisite.
Math 115: Precalculus II (5)	Math 114 only	QSR in full	Data analysis, modeling, trigonometry, inverse functions.	Math 124 This course must be passed with a C– or higher to serve as a prerequisite.
Math 118: Accelerated Precalculus (5)	MPA 70 or higher	QSR in full	Functions as mathematical models, functions and their graphs, inverse functions, trigonometry.	Math 124, 157 This course must be passed with a C– or higher to serve as a prerequisite.
Math 124: Calculus and Analytic Geometry I (5)	Math 115 or 118 or MPA 80 or higher, or final college course in precalculus (PC2) with C+ or better, or suitable AP Calculus score	QSR in full	Average and instantaneous rates of change, interpretation, computation and application of derivatives to optimization, rates, graphing & antiderivative problems.	Math 125 This course must be passed with a C– or higher to serve as a prerequisite. May be used as a substitute for Math 157.
Math 125: Calculus and Analytic Geometry II (5)	Math 124 or Math 134, or suitable AP Calculus score	QSR previously fulfilled	The definite integral, techniques of integration, applications including area and volume, growth and decay, introduction to differential equations.	Math 204, 224, 226, 302, 341, 360 This course must be passed with a C- or higher to serve as a prerequisite.
Math 138: Accelerated Calculus (5)	Suitable AP Calculus score	QSR previously fulfilled	A study of selected topics in single variable calculus from a deeper conceptual perspective, for students already familiar with its computational aspects.	Math 204, 224, 226, 302, 341, 360 This course must be passed with a C- or higher to serve as a prerequisite.
Math 156: Algebra with Applications to Business & Economics (4)	Math 112 MPA 55 or higher	QSR in full	Equations and inequalities, graphs and functions, exponential and logarithmic functions, business applications.	Math 157 This course must be passed with a C– or higher to serve as a prerequisite.
Math 157: Calculus with Applications to Business & Economics (4)	Math 114 or 118 or 156, MPA 65 or higher, or college precalculus 1 (PC1) course with C+ or better	QSR in full	Limits, rates of change, partial differentiation, graphs and optimization, integration, business applications.	May not be used as a substitute for Math 124. Math 124 or AP Calculus score of 3, 4 or 5 fulfills Math 157. Math 157 does not serve as a prerequisite for further math.
Math 160: Mathematics and Art (4)	Math 112 MPA 55 or higher	QSR in full	Investigation of connections between mathematics, art and design with emphasis on mathematical inquiry and discovery.	Math 160 does not serve as a prerequisite for any further math courses.
Math 240: Introduction to Statistics (4)	Math 112, MPA 35 or higher, or college precalculus 1 (PC1) course with C+ or better	QSR in full	Descriptive statistics, basic ideas of probability, normal distribution, sampling, and more.	Math 240 does not serve as a prerequisite for any further math courses.

Calculus Placement Advice:

- Students with college credit for Precalculus I (PC1) with at least C+ or better can register for Math 157.
- Students with college credit for a 2nd/final Precalculus (PC2) course with C+ or better can register for Math 124.
- Students with college credit for a Calculus course with C– or better can register for Math 125 or higher.
- Students who score 3 on the AP AB Calculus Exam should take Math 124, if Calculus coursework is required.
- Students who score 4 or 5 on the AP AB Calculus exam should take Math 138. Math 224 is not recommended.
- Students who score 2 or more on the AP BC Calculus Exam should consult a math advisor to select the best course.
- Math 124, 134, 138 or AP Calculus Exam with a score of 3, 4 or 5 fulfills Math 157.
- Math 134 (Honors Calculus) is for Honors students and others with high potential. Prospective students must take the MPA and talk with and obtain permission to register from a math advisor.
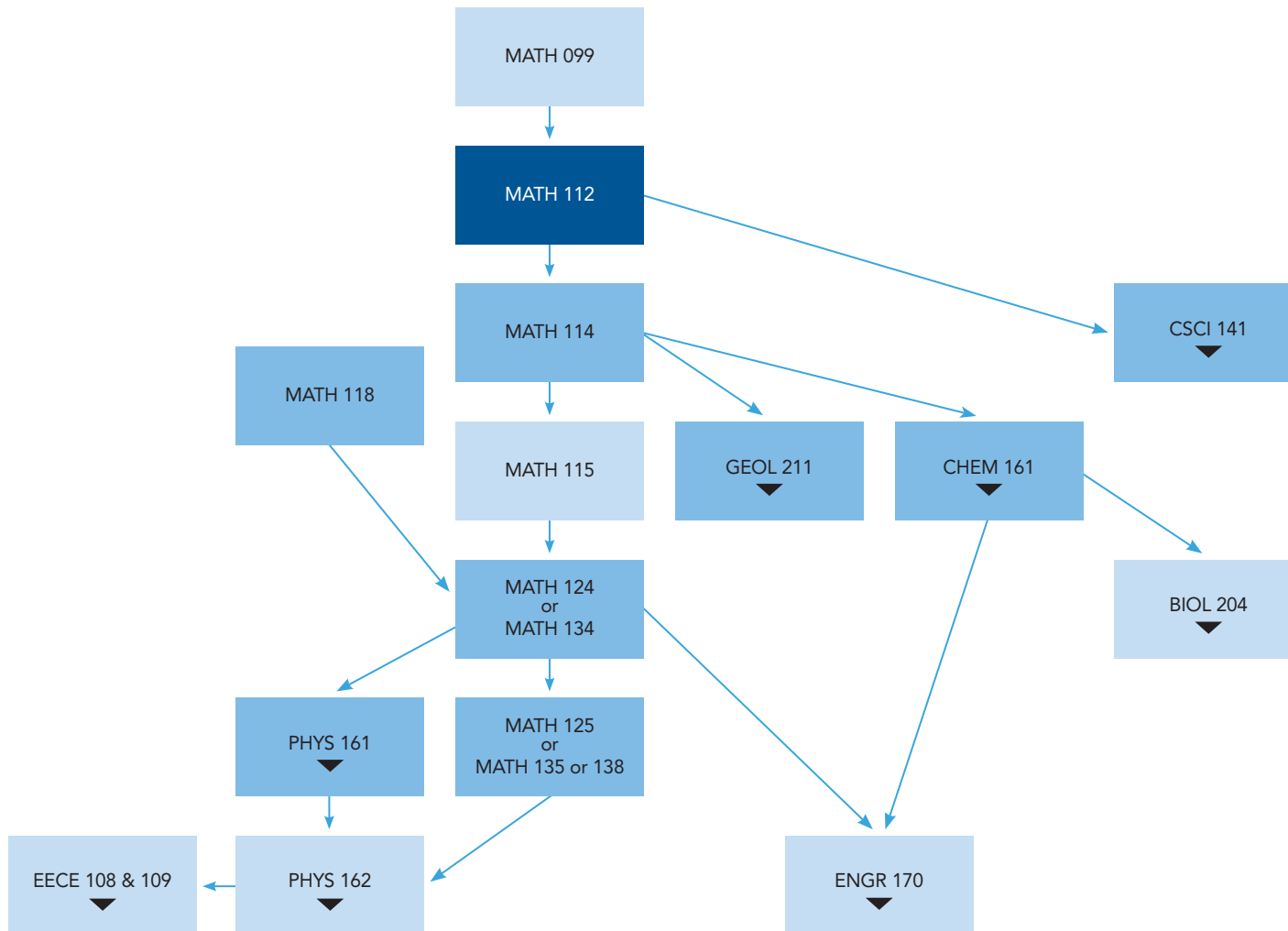
A few very strong students will not have taken the AP Calculus Test, but will have adequate backgrounds to skip Math 124 and begin with Math 125 or possibly Math 138. Prospective students should speak with a math advisor.

ADVANCED PLACEMENT (AP) CALCULUS EXAM AND SCORE (CODE)	COURSE EQUIVALENCE (CREDITS)	MATH COURSE ELIGIBILITY NOTE: Math 134 requires instructor permission and an ALEKS test score	RECOMMENDED COURSE; GENERAL ADVICE
AB EXAM (AP 66)			
1	None	Based on MPA Score	Take the MPA
2	None	Math 118, Math 124 or Math 157	Math 118 (STEM); 157 (CBE); take the MPA
3	None (5 Elective Credits)	Math 118 or Math 124 or Math 157	Math 124 or 134 (STEM); contact a Math Advisor
4	Math 124 (5)	Math 125 or Math 138	Math 134 or Math 138; contact a Math Advisor
5	Math 124 & Math 125 (10)	Math 138 or Math 224	Math 134 or Math 138; contact a Math Advisor
BC EXAM (AP 68); BC EXAM WITH AB SUBSCORE (AP 69)			
1	Based on AB Subscore (AP 69)	Based on AB Subscore (AP 69)	Reference AB exam table above
2 (with AB Subscore of 1 or 2)	Based on AB Subscore (AP 69)	Based on AB Subscore (AP 69)	Reference AB exam table above
2 (with AB Subscore of 3 or 4)	Math 124 (5)	Math 125 or Math 138	Math 134 or Math 138; contact a Math Advisor
2 (with AB Subscore of 5)	Math 124 & Math 125 (10)	Math 138 or Math 224	Math 134 or Math 138; contact a Math Advisor
3 (with AB Subscore of 1-4)	Math 124 (5)	Math 125 or Math 138	Math 134 or Math 138; contact a Math Advisor
3 (with AB Subscore of 5)	Math 124 & Math 125 (10)	Math 138 or Math 224	Math 134 or Math 138; contact a Math Advisor
4	Math 124 & Math 125 (10)	Math 138 or Math 224	Math 224
5	Math 124 & Math 125 (10)	Math 138 or Math 224	Math 224
BC EXAM (AP 68); NO AB SUBSCORE (AP 69) AVAILABLE FOR SPRING 2020 EXAM ONLY			
1	No credit	Based on MPA score	Take the MPA
2	Math 124 (5)	Math 125 or Math 138	Math 134 or Math 138; contact a Math Advisor
3	Math 124 (5)	Math 125 or Math 138	Math 134 or Math 138; contact a Math Advisor
4	Math 124 & Math 125 (10)	Math 138 or Math 224	Math 138 or Math 224; contact a Math Advisor
5	Math 124 & Math 125 (10)	Math 138 or Math 224	Math 138 or Math 224; contact a Math Advisor

Key to codes:

AP 66 = Calculus AB Exam • **AP 68** = Calculus BC Exam • **AP 69** = Calculus BC Exam with AB Subscore • **CBE** = College of Business and Economics • **GUR** = General University Requirements
MPA = ALEKS Math Placement Assessment • **QSR** = Quantitative & Symbolic Reasoning Section of the GUR. See pages 10-13 of the Viking Advisor • **STEM** = Science, Technology, Engineering and Math

WWU MATH AS PREREQUISITE FOR SCIENCE & ENGINEERING MAJORS

MATH 099 → MATH 112

MATH 112 → MATH 114
MATH 112 → CSCI 141

MATH 114 → MATH 115
MATH 114 → GEOL 211
MATH 114 → CHEM 161

CHEM 161 → BIOL 204
CHEM 161 → ENGR 170

MATH 118 → MATH 124 or MATH 134

MATH 115 → MATH 124 or MATH 134

MATH 124 or MATH 134 → PHYS 161
MATH 124 or MATH 134 → MATH 125 or MATH 135 or 138
MATH 124 or MATH 134 → ENGR 170

PHYS 161 → PHYS 162

MATH 125 or MATH 135 or 138 → PHYS 162

PHYS 162 → EECE 108 & 109

KEY

▼ First class in a sequence. Check the Programs of Study in the Catalog for full sequence.

Eligible with suitable MPA Score or Transfer Credit

Eligible with suitable MPA Score or AP Exam Score or Transfer Credit

DEPARTMENT CONTACTS

Academic Advising Center
360-650-3850

Biology Department
360-650-6165

Chemistry Department
360-650-4012

Computer Science Department
360-650-2300

Engineering & Design Department
360-650-4132

Geology Department
360-650-3582

Math Department
360-650-3785

Physics Department
360-650-3818

Seek advising on recommended course sequencing each quarter.