

**BEACON PROGRAM CHECKLIST
SECONDARY
MATH CERTIFICATION (Grades 9-12)**



Education department

GENERAL EDUCATION

38 – 47 hrs

The general education component is to be completed according to Columbia College degree requirements. (Please refer to your entrance year catalog for specific degree requirements.)

LIBERAL ARTS AND SCIENCE DEGREE

40 – 63 hrs

It is recommended that students seeking this certification choose a major that has similar course requirements in the degree. Your academic advisor can help you with your choice of major.

Students must complete the degree requirements as set forth by Columbia College. Hours required for completion will vary depending on area chosen. (Please refer to your entrance year catalog for specific degree requirements.)

CONTENT AREA COURSEWORK FOR MATH

36 hrs minimum

Grade	Course #	Course Title	Cr Hrs
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Calculus and Geometry (9 hrs)

	MATH 201	Calculus and Analytical Geometry I	5
	MATH 222	Calculus and Analytical Geometry II	5

	MATH 150	College Algebra (<i>Algebraic Structures 3 hrs</i>) (<i>Optional courses for this category: MATH 303 – Linear Algebra [if not used below] or MATH 304 – Introduction to Abstract Algebra</i>)	3
	MATH 331	Foundations of Geometry (<i>Geometry 3 hrs</i>)	3
	Choose:	COSC 176 - Introduction to Computer Science or COSC 145 - Introduction to Python Programming (<i>Computer Science 3 hrs</i>)	3
	Electives:	Math Electives: 6 hours from the above listed categories. Recommended: MATH 155 – Algebraic Reasoning for Elementary and Middle School Teachers (Recommended) MATH 165 – Geometric Reasoning for Elementary and Middle School Teachers (Recommended) MATH 180 – Precalculus MATH 215 – Differential Calculus MATH 226 – Integral Calculus I MATH 235 – Integral Calculus II MATH 304 – Introduction to Abstract Algebra MATH 380 – Advanced Calculus	6

Minimum twelve (12) hrs from at least three of the following areas:

	MATH 330	History of Mathematics (<i>History of Mathematics</i>)	3
	MATH/EDUC 102	Teaching and Learning Elementary Mathematics from an Advanced Perspective (<i>Structure of the Real/Number System</i>)	3
	MATH 305	Number Theory (<i>Number Theory 3 hrs</i>)	3
	MATH 300	Multivariate Calculus (<i>Completion of Calculus Sequence 3 hrs</i>)	3
	Choose:	MATH 250 - Statistics I Recommended or MATH 338 - Mathematical Statistics and Probability Recommended or MATH 340 – Introduction to Probability Theory (Probability and Statistics 3 hrs)	3

[The College reserves the right to alter at any time requirements to meet state certification regulations.]

	COSC 240	Introduction to Programming (<i>Computer Science 3 hrs</i>)	3
	MATH 303	Linear Algebra Recommended (<i>Linear Algebra</i>)	3

NOTE: Specific courses are listed above as “**recommended**” because the knowledge gained in these courses will aid in passing the Missouri Content Assessment for Secondary Math.

PROFESSIONAL EDUCATION COURSEWORK

57 hrs

Grade	Course #	Course Title	Cr Hrs	Field Experience (observation hrs) included
	SOCI 270	Diversity and Society	3	none
	EDUC 100	Introduction to Education	3	15 hrs
	EDUC 200	Law, Ethics, and Education	3	none
	EDUC 220	Methods of Teaching English Learners	3	none
	EDUC 230	Educational Psychology	3	none
	EDUC 300	Techniques of Teaching	3	15 hrs
	EDUC 311	Classroom Management Techniques	3	15 hrs
	EDUC 390	Education & Psychology of the Exceptional Child	3	none
	Choose option	EDUC 396 – Child and Adolescent Development; or EDUC 391 – Child Psychology and EDUC 392 – Adolescent Psychology	3	none
Admission to the Teacher Certification Program (See Teacher Certification Program Checklist)				
	EDUC 322	Educational Measurement and Assessment	3	none
	EDUC 338	Content Reading and Writing	3	15 hrs
	EDUC 360	Teaching Mathematics in Middle and Secondary School	3	15 hrs
	EDUC 375	Advanced Content Methods	3	15 hrs
	EDUC 376	Adolescent Literacy	3	
	EDUC 400	Senior Seminar	3	none
Approval for Student Teaching (See Student Teaching checklist)				
	EDUC 425	Undergraduate Student Teaching	12	16 weeks
		Total Credit Hours	57	
Approval for DESE Certification recommendation (See DESE Certification checklist)				

Retention Criteria:

- Complete at least 6 hours of professional education each year
- Complete Field Experiences and receive favorable evaluations from cooperating teachers and college supervisors
- Maintain a cumulative GPA of 3.0 or above in professional education courses and content area courses

Other requirements for certification that must be completed prior to graduation:

- Successful completion/passing of appropriate Missouri Content Assessment (MoCA) (must be passed prior to student teaching)
- Successful completion of program certification performance assessment - MEES

*This is not a degree checklist
Rev. 8/2023

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