

Checksheet: B.S. in Mathematics, Pure Option

Part 1 General Requirements

[43-47 credits]

First Year Experience Course [1 credit]

SCI	I120	1	
-----	------	---	--

(Not required if student transfers with 18 or more credit hours.)

English and Communication [9 credits]

ENG	W131 or W140 (honors)	3	
ENG		3	
COMM	R110	3	

Grade of C or better required for each composition (ENG) course. For second ENG course select from: ENG W270, W231, W230, W320; or TCM 22000 or 32000.

Modern Foreign Language [8 credits]

American Sign Language is acceptable.

Arts & Humanities [3 credits]

		3	
--	--	---	--

See General Education Common Core Course Options for Math Majors list for acceptable courses.

Social Sciences [3 credits]

		3	
--	--	---	--

See General Education Common Core Course Options for Math Majors list for acceptable courses.

Additional Arts & Humanities or Social Sciences [3 credits]

		3	
--	--	---	--

See General Education Common Core Course Options for Math Majors list for acceptable courses.

Cultural Understanding [3 credits]

		3	
--	--	---	--

May be satisfied through Modern Foreign Language Requirement. See General Education Common Core Course Options for Math Majors for acceptable courses.

Computer Science [3-4 credits]

--	--	--	--

Grade of C or better required. Course must be in a higher level programming language. Approved courses include CSCI 23000, N305, N311, N331, N335, N345. CSCI 23000 recommended. See advisor for approval of course not on list.

Life and Physical Sciences [13 credits]

PHYS	15200	4	

At least 4 courses selected from BIOL, CHEM, GEOL, PHYS, or AST. PHYS 15200 (or a more advanced physics course) must be one of the 4 required science courses. At least 1 course must contain a laboratory. See General Education Common Core Course Options for Math Majors list for acceptable courses. Grade of C- or better required in each course, except for at most one grade of D+ or D. The following courses are NOT acceptable: all AGR courses; AST A130; BIOL N100, N120, N200; CHEM C100, C101, C102, C110; GEOL G130; PHYS 01000, 10000, 14000, 20000, 21800, 21900.

Except for laboratory courses combined with corresponding lecture courses, 1 credit hour and, in general, 2 credit hour courses do not apply in this area.

A minimum of 120 credits must be completed for graduation. This total must include residence of at least 2 semesters at IUPUI and completion of at least 32 credits at IUPUI in courses at the 300-level or above.

Want to learn more about careers in math? ams.org/employment/undergrad.html

Checksheet: B.S. in Mathematics, Pure Option

Part 2 Pure Mathematics Option Requirements

Major Area: A grade of C or better is required in each course.

G.P.A. in major courses must be 2.5 or above.

Core Courses [33 credits]

MATH 16500 (F, S, SSI)	Anal. Geom. & Calculus I (P: 15400 or 15900)	4	
MATH 16600 (F, S, SSII)	Anal. Geom. & Calculus II (P: 16500)	4	
MATH 17100 (F, S, SSI, SSII)	Multidimensional Math (P: 15400 or 15900)	3	
MATH 26100 (F, S, SSI)	Multivariate Calculus (P: 16600 and 17100)	4	
MATH 26600 (F, S, SSII)	Differential Equations (P: 16600 & 17100, C: 26100)	3	
MATH 35100 (F,S)	Linear Algebra (P: 26100)	3	
MATH 45300 (F)	Abstract Algebra (P: 30000, 35100)	3	
MATH 46200 (S)	Differential Geometry (P: 30000, 35100)	3	
Two of the following: MATH 44400 (F), 42500 (F), 32101 (S)	Foundations of Analysis I, Elements of Complex Analysis, Elementary Topology (all have P: 26100, 30000)	3 + 3	

Required Advanced Electives [12 credits]

MATH 30000 (F, S)	Logic & Fnd of Alg (P: MATH 16500, 17100)	3	

MATH 30000 is a prerequisite for advanced mathematics courses. Courses in CSCI or other School of Science departments that have an appropriate mathematical content may be selected with advisor's approval. Normally, no more than 6 credits of non-math/stat courses will be approved.

The 45 credit hours of math must include at least two 2-course sequences (6 cr hrs each) from the list below.

At least one * sequence must be chosen as one of the two course sequences. No overlaps allowed.

- *Abstract Algebra - MATH 45300 & 45400 or higher
- *Algebra and Number Theory - MATH 45600 & 45300
- *Comp Analysis and Diff Eqs- MATH 42500 & 52000
- *Foundations of Analysis - MATH 44400 & 44500

- *Differential Geometry - MATH 46200 & 56200
- *Linear Algebra- MATH 35100 & 35300
- Modeling - MATH 42100 or 42300 & 42600 or higher
- Numerical Analysis - MATH 41400 & CSCI 51500

- Probability & Statistics - Two STAT courses, 35000 or higher
- Scientific Computing - CSCI 47500 & 47600
- Theoretical Computer Science - CSCI 34000 & 48400
- *Topology- MATH 32101 & 57100

Capstone Experience [2 - 3 credits]

MATH	49200		
------	-------	--	--

Secondary Area of Concentration [18 credits]

At least 3 courses beyond the introductory level. A secondary area of concentration in one of the physical sciences or in a subject which makes serious use of mathematics, such as physics, computer science or economics is desirable.

General Electives [9-12 credits]

Courses taken outside the School of Science and Liberal Arts must receive advisor's approval. No more than 6 credits of clinical, athletic, or performing arts courses will be approved.

Independent Study (correspondence) courses for general electives up to a maximum of 12 credits may be taken with the permission of the Associate Dean for academic programs in the School of Science.

Courses taken on a pass/fail option will be applied only as general electives and not toward degree area requirements of the school or department.