

# **Houston GPS Math, Science\*, and Health Sciences\* Meta-Major Map Document**

\*Computer Science, Geology, Health & Wellness, and Kinesiology are being edited and will be added back once finalized.

## Map Guidelines

- Houston GPS maps include courses that apply to lower-level requirements in specified degrees across Houston GPS institutions without resulting in excess credit upon transfer. Courses are in the Lower-Division Academic course Guide Manual (ACGM) and course numbers provided are those in the Texas Common Course Numbering System.
- [Field of Study Curricula](#) approved by the Texas Higher Education Coordinating Board are incorporated into maps.

[Unless repealed or replaced, Field of Study Curricula in effect as of March 1, 2021 will remain in effect until August 31, 2025, upon which date those Field of Study Curricula expire by operation of law.](#)

- The following [Texas Core Curriculum](#) requirements are incorporated into maps:

<b>Code</b>	<b>Component Area</b>	<b>SCH</b>
010	Communication	6
020	Mathematics	3
030	Life and Physical Science	6
040	Language, Philosophy and Culture	3
050	Creative Arts	3
060	American History	6
070	Government/Political Science	6
080	Social and Behavioral Sciences	3
090	Component Area Option	6
<b>Total</b>		<b>42</b>

**Houston GPS  
Math, Science, and Health Sciences Maps**

Biology

The Biology Map for Houston GPS includes the following majors at participating institutions:

<b>Alvin Community College</b>	<b>College of the Mainland</b>	<b>Galveston College</b>	<b>Houston Community College</b>
AS, Biological Science	AS, Natural Science	AS, Biology	AS, Biology
			AS, Biology, Health Science Professions
			AS, Biology, Health Science Professions –Pre-Clinical Laboratory Services Specialization
			AS, Biology, Health Science Professions – Pre-Nursing Specialization
			AS, Biology, Health Science Professions – Pre-Radiologic Sciences Specialization
<b>Lone Star College</b>		<b>San Jacinto College</b>	<b>Wharton County Junior College</b>
AS, Biology		AS, Natural Science	AS, Biology

<b>PVAMU</b>	<b>UH</b>	<b>UH Downtown</b>	<b>UH Clear Lake</b>	<b>UH Victoria</b>	<b>TSU</b>	<b>TWU</b>
BS, Biology	BA, Biology	BS, Biology	BA, Biology	BS, Biology	BS, Biology	BS, Biology
	BS, Biology	BS, Biology with Concentration in Environmental Biosciences	BS, Biology with Physiology/Pre-Health Specialization			BS, Biology pre-med track
	BA, Biochemical & Biophysical Sciences	BS, Biology with Concentration in Microbiology	BS, Biology Cellular/Molecular/Biotechnology Specialization			BS, Biology pre-PA track
	BS, Biochemical & Biophysical Sciences	BS, Biology with Concentration in Molecular and Cellular Biosciences	BS/MS, Biology with Clinical Laboratory Science Specialization (shared degree with UTMB)			BS Biology, 4-8 Science Teacher Certification
	BS, Mathematical Biology	Biological and Physical Sciences, BS	BS, Biology with Ecology/Microbiology/Aquatic/Marine Specialization			BS Biology, 7-12 Life Science Teacher Certification
	BS, Honors Biomedical Sciences	BS, Biological and Physical Sciences with Secondary Teacher Certification	BS, Biology with Plant Specialization			BS Biology, 7-12 Composite Science Teacher Certification
		BA, Biology	BA, Biology with Life Science 7-12 Certification			BS, Medical Laboratory Sciences

Courses in the following representative sequence apply to lower-level requirements in BS and BA in **Biology** degrees across Houston GPS institutions without resulting in excess credit upon transfer. Course numbers provided are those in the Texas Common Course Numbering System.

Year 1	
BIOL 1406 or BIOL 1306/1106 Biology for Science Majors with Lab I**	BIOL 1407 or BIOL 1307/1107 Biology for Science Majors with Lab II**
CHEM 1411 or CHEM 1311/1111 General Chemistry with Lab I**	CHEM 1412 or CHEM 1312/1112 General Chemistry with Lab II**
MATH 2413 Calculus I (020)*	Core (090)*
ENGL 1301 Composition I (010)*	ENGL 1302 Composition II (010)*
Year 2	
CHEM 2423 or CHEM 2323/2123 Organic Chemistry with Lab I**	PHYS 1401 or PHYS 1301/1101 College Physics with Lab I**
BIOL 2321 Microbiology for Science Majors	Creative Arts Core (050)* (or other remaining core)
HIST 1301 United States History I (060)* (or other remaining core)	HIST 1302 United States History II (060)* (or other remaining core)
GOVT 2305 Federal Government (070)* (or other remaining core)	GOVT 2306 Texas Government (070)* (or other remaining core)
Social and Behavioral Sciences Core (080)* (or other remaining core)	Language, Philosophy and Culture Core (040)* (or other remaining core)

\* Core Curriculum

\*\* Biology Field of Study (effective September 2019; Revision in progress; will expire on August 31, 2025)

Notes Regarding Institutional Exceptions or Special Cases:

ACC: AS, Biological Science does not offer math beyond Algebra.

COM: Does not currently offer BIOL 2321

UH: BIOL 2321 fulfills an elective requirement, BIOL1306/1106 and BIOL 1307/1107 fulfill core Life and Physical Science (030), MATH 2413 fulfills core Mathematics (020), and MATH 2414 fulfills core Math Reasoning (090).

The pre-requisite for entry into MATH 2413 at UH is credit for MATH 2312 with a grade of C- or higher or a satisfactory score on a math placement exam. The pre-requisite for entry into CHEM1311 at UH is MATH 2312 or equivalent.

UHCL: MATH 2413 fulfills core Mathematics (020). MATH 2414 not required for Biology majors. Biology 2321 and BIOL 2121 are required for Biology majors (except for the Plant specialization).

BIOL1306/1106 and BIOL 1307/1107 fulfill core Life and Physical Science (030) and two hours of component area option (090) filled by labs. BIOL 2321/2121 are required for Biology majors (except for the Plant specialization). BIOL 2421 will be accepted, but BIOL 2420 will not be accepted for transfer.

SJC: MATH 2413 – Prerequisite(s) enforced.

TWU: BIOL 2321 does not transfer. Recommend students take PHYS 1402 – Physics II with a lab. Students may still want to take 2321 to prepare them for major 3000 level course.  
 MATH 2413 not necessary, only College Algebra needed to transfer.

## Chemistry

The Chemistry Map for Houston GPS includes the following majors at participating institutions:

<b>Alvin Community College</b>	<b>College of the Mainland</b>	<b>Galveston College</b>	<b>Houston Community College</b>
AS, Physical Science	AS, Natural Science	AS, Chemistry	AS, Chemistry
<b>Lone Star College</b>	<b>San Jacinto College</b>		<b>Wharton County Junior College</b>
	AS, Natural Science		AS, Chemistry

<b>PVAMU</b>	<b>UH</b>	<b>UH Downtown</b>	<b>UH Clear Lake</b>	<b>UH Victoria</b>	<b>TSU</b>	<b>TWU</b>
BS, Chemistry with Concentration in Traditional Chemistry	BA, Chemistry	BS, Chemistry	BA, Chemistry		BS, Chemistry with Concentration in PreMedical-PreDental	BS, Chemistry
BS, Chemistry with Concentration in Biomedical Science	BS, Chemistry	BS, Chemistry with Concentration in Biochemistry	BS, Chemistry		BS, Chemistry with Concentration in Forensic Sciences	BS, Chemistry ACS Certification
BS, Chemistry with Concentration in Forensic Science		BS, Chemistry with Concentration in Environmental Chemistry				BS, Chemistry Environmental Chemistry
		BS, Chemistry with Concentration in Forensic Sciences				BS, Chemistry 7-12 Composite Science Teacher Certification
		BS, Chemistry with Concentration in Industrial Chemistry				BS, Chemistry 6-12 Physical Science Teacher Certification

Courses in the following representative sequence apply to lower-level requirements in **BS and BA, Chemistry** degrees across Houston GPS institutions without resulting in excess credit upon transfer. Course numbers provided are those in the Texas Common Course Numbering System.

Year 1	
CHEM 1411 or CHEM 1311/1111 General Chemistry with Lab I	CHEM 1412 or CHEM 1312/1112 General Chemistry with Lab II
MATH 2413 Calculus I	MATH 2414 Calculus II
ENGL 1301 Composition I (010)*	ENGL 1302 Composition II (010)*
HIST 1301 United States History I (060)* (or other remaining core)	HIST 1302 United States History II (060)* (or other remaining core)
Social and Behavioral Sciences Core (080)* (or other remaining core)	
Year 2	
CHEM 2423 or CHEM 2323/2123 Organic Chemistry I with Lab I	CHEM 2425 or CHEM 2325/2125 Organic Chemistry II with Lab II
PHYS 2425 or PHYS 2325/2125 University Physics I with Lab I	PHYS 2426 or PHYS 2326/2126 University Physics II with Lab II
GOVT 2305 Federal Government (070)* (or other remaining core)	GOVT 2306 Texas Government (070)* (or other remaining core)
Creative Arts Core (050)* (or other remaining core)	Language, Philosophy and Culture Core (040)* (or other remaining core)
Component Area Option Core (090)*	

\* Core Curriculum

(Currently no Chemistry Field of Study)

Notes Regarding Institutional Exceptions or Special Cases:

ACC: AS, Physical Science does not offer math beyond Calculus; CHEM 2425 not offered.

UH: CHEM1311/1111 and CHEM 1312/1112 fulfill core Life and Physical Science (030), MATH 2413 fulfills core Mathematics (020), and MATH 2414 fulfills core Math Reasoning (090). -The pre-requisite for entry into MATH 2413 at UH is credit for MATH 2312 with a grade of C- or higher or a satisfactory score on a math placement exam. The pre-requisite for entry into CHEM1311 at UH is MATH 2312 or equivalent.

TWU: CHEM 2425 will transfer as a 2000 level course; students will need to get it reviewed by the department and potentially need to take an additional major course.

Mathematics

The Mathematics Map for Houston GPS includes the following majors at participating institutions:

Alvin Community College	College of the Mainland	Galveston College	Houston Community College
AS, Mathematics	AS, Math	AS, Mathematics	AS, Mathematics
Lone Star College	San Jacinto College	Wharton County Junior College	
	AS, Mathematics	AA, Mathematics	

PVAMU	UH	UH Downtown	UH Clear Lake	UH Victoria	TSU	TWU
BS, Mathematics	BA, Mathematics	BA, Mathematics	BA, Mathematical Science	BA, Mathematical Sciences	BS, Mathematics	
Bs, Mathematics – Teacher Certification	BS, Mathematics	BS, Mathematics	BS, Mathematical Science	BS, Mathematical Sciences	BS, Mathematics with a concentration in Data Science	
	BS, Mathematics— Mathematical Finance Option	BA, Mathematics with Secondary Mathematics Teacher Certification	Mathematical Science BA with 4-8 Certification			
	BA, Mathematics— Teach Houston Option	BS, Applied Statistics  BS, Data Science	Mathematical Science BA/BS with 7-12 Certification			
	BS, Mathematics— Teach Houston Option	BS, Applied Statistics with concentration in Biostatistics				
	BS, Mathematics— Data Science Option	BS, Applied Statistics with Secondary Teacher Certification				

Courses in the following representative sequence apply to lower-level requirements in **Mathematics** degrees across Houston GPS institutions without resulting in excess credit upon transfer. Course numbers provided are those in the Texas Common Course Numbering System.

Year 1	
MATH 2413 Calculus I**	MATH 2414 Calculus II**
Language, Philosophy, and Culture Core (040)*	PHYS 2425 University Physics I plus lab or PHYS 2325/PHYS 2125 University Physics I plus lab**
ENGL 1301 Composition I (010)*	ENGL 1302 Composition II (010)*
HIST 1301 United States History I (060)*	HIST 1302 United States History II (060)*
Social and Behavioral Sciences Core (080)*	
Year 2	
MATH 2415 Calculus III**	MATH 2320 Differential Equations**
MATH 2318 Linear Algebra**	<i>One of the following**</i> ENGR 2304 Programming for Engineers COSC 1336 Programming Fundamentals I (3 SHC version) COSC 1436 Programming Fundamentals I (4 SCH version) <i>or a course that includes Programming Fundamentals I as a prerequisite:</i> <ul style="list-style-type: none"> <li>• COSC 1337 Programming Fundamentals II (3 SCH version)</li> <li>• COSC 1437 Programming Fundamentals II (4 SCH version)</li> <li>• COSC 2336 Programming Fundamentals III (3 SCH version)</li> <li>• COSC 2436 Programming Fundamentals III (4 SCH version)</li> <li>• COSC 2325 Computer Organization (3 SCH version)</li> <li>• COSC 2425 Computer Organization (4 SCH version)</li> </ul>
GOVT 2305 Federal Government (070)*	GOVT 2306 Texas Government (070)*
Life and Physical Science Core(030)*	Component Area Option (090)* or elective
Component Area Option (090)* or elective	Creative Arts Core (050)*

\* Core Curriculum

\*\* Mathematics Field of Study (effective September 2020; will expire August 31, 2025)

Notes Regarding Institutional Exceptions or Special Cases:

UH: Only the BS, Mathematics—Data Science subplan has a programming fundamentals requirement (COSC 1336). All mathematics majors at UH (excluding Mathematical Biology majors) must take MATH 2131 (Linear Algebra Labs with MATLAB) which covers basic elements of



programming using MATLAB. Students pursuing a Mathematics degree other than the BS Mathematics-Data Science subplan may still apply programming fundamentals credit toward free electives for their degree.

Students in the Math BA or Math BA Teach Houston program must take CHEM1311 to receive credit for CHEM1312 if CHEM1312 is selected to meet the Core Life and Physical Science Requirements.

UHV: Does not offer University Physics, instead offers College Physics. Linear Algebra is a 3,000-level course\*

PVAMU: Linear Algebra is a 3,000-level course\*

\*If a student takes Linear Algebra at the 2000 level, you would need a transfer rule to accept a 2000 level at the 3000 level and it may impact a student's ability to reach the minimum number of advanced electives required.

Physics

The Physics Map for Houston GPS includes the following majors at participating institutions:

<b>Alvin Community College</b>	<b>College of the Mainland</b>	<b>Galveston College</b>	<b>Houston Community College</b>
AS, Physical Science	AS, Natural Science	AS, Physics	AS, Physics
<b>Lone Star College</b>		<b>San Jacinto College</b>	<b>Wharton County Junior College</b>
		AS, Natural Science	AS, Physics

<b>PVAMU</b>	<b>UH</b>	<b>UH Downtown</b>	<b>UH Clear Lake</b>	<b>UH Victoria</b>	<b>TSU</b>
BS, Physics	BA, Physics		BS, Physics		BS, Physics
	BS, Physics				

Courses in the following representative sequence apply to lower-level requirements in **Physics** degrees across Houston GPS institutions without resulting in excess credit upon transfer. Course numbers provided are those in the Texas Common Course Numbering System.

<b>Year 1</b>	
CHEM 1411 General Chemistry I or CHEM 1311/1111 General Chemistry with Lab I*	CHEM 1412 General Chemistry with Lab II or CHEM 1312/1112 General Chemistry with Lab II*
MATH 2413 Calculus I (030)*	MATH 2414 Calculus II
Social and Behavioral Sciences Core (080)*	PHYS 2425 University Physics I plus lab or PHYS 2325/PHYS 2125 University Physics I plus lab
ENGL 1301 Composition I (010)*	ENGL 1302 Composition II (010)*
Creative Arts Core (050)*	
<b>Year 2</b>	
PHYS 2426 University Physics II plus lab or PHYS 2326/PHYS 2126 University Physics II plus lab	MATH 2318 Linear Algebra
MATH 2415 Calculus III	Language, Philosophy, and Culture Core (040)*
HIST 1301 United States History I (060)*	HIST 1302 United States History II (060)*
Remaining Core Curriculum Requirement	Remaining Core Curriculum Requirement

\* Core Curriculum

Notes Regarding Institutional Exceptions or Special Cases:

ACC: AS, Physical Science does not offer math beyond Calculus I

UH: CHEM1311/1111 and CHEM 1312/1112 fulfill core Life and Physical Science (030), MATH 2413 fulfills core Mathematics (020), and MATH 2414 fulfills core Math Reasoning (090). -The pre-requisite for entry into MATH 2413 at UH is credit for MATH 2312 with a grade of C- or higher or a satisfactory score on a math placement exam. The pre-requisite for entry into CHEM1311 at UH is MATH 2312 or equivalent.

UHCL: MATH 2318 is incorporated into PHYS 3311 Math Methods I. It will not be accepted as a standalone equivalent. If taken with MATH 2320, it can be considered for equivalency for PHYS 3311 with program chair approval.

TSU: Math 2320 Differential Equations can be taken instead of MATH 2318 Linear Algebra