

MATERIALS SCIENCE AND ENGINEERING, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2023-24 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition (*Note: the archive only contains suggested academic plans beginning with the 2018-19 edition of the Undergraduate Bulletin*).

Materials Science and Engineering, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 140 or 140G (GQ) ^{*†#†2}	4 MATH 141 or 141G (GQ) ^{*†#†2}	4
CHEM 110 (GN) ^{*#†2}	3 MATSE 112 or CHEM 112 (GN) ^{*#2}	3
CHEM 111 (GN) ^{*#†2}	1 CHEM 113 ^{*#2}	1
EMSC 100S (or CAS 100 by substitution) (GWS) ^{††1}	3 PHYS 211 (GN) ^{*#†2}	4
General Education Knowledge Domain (IL)	3 ENGL 15, 30H, or ESL 15 (GWS) ^{††}	3
General Education Knowledge Domain (Integrative)	3	
	17	15

Second Year

Fall	Credits Spring	Credits
PHYS 212 (GN) [†]	4 MATH 251	4
CHEM 202	3 IE 424 or STAT 401 ³	3
MATH 220 ^{*#2}	2 MATSE 202 [*]	3
MATH 231	2 MATSE 203 or ENGL 202C (GWS) ^{††}	3
MATSE 201 [*]	3 MATSE 413	3
MATSE 219 or CMPSC 200	3	
	17	16

Third Year

Fall	Credits Spring	Credits
MATSE 400 [*]	3 MATSE 402 [*]	3
MATSE 401 [*]	3 MATSE 419	3

MATSE 430 [*]	3 MATSE 492W (Writing Across the Curriculum) [*]	3
MATSE 436	3 MATSE 462	1
MATSE 460	1 MATSE Specialization Course 1 from Department List	3
General Education Knowledge Domain (US)	3 General Education Knowledge Domain (Integrative)	3
	General Education Health and Wellness (GHW)	1.5
	16	17.5

Fourth Year

Fall	Credits Spring	Credits
MATSE 493W or 494W ⁴	3-0 or MATSE 493W or 494W ⁴ 2	0-3 or 1
MATSE Specialization Course 2 from Department List	3 MATSE Specialization Course 3 from Department List	3
Technical Elective 1	3 MATSE Specialization Course 4 from Department List	3
Technical Elective 2	3 Technical Elective 3	3
MATSE Senior Processing Laboratory (can be taken fall or spring)	0-1 Technical Elective 4	3
General Education Knowledge Domain	3 MATSE Senior Processing Laboratory (can be taken fall or spring)	1-0
General Education Health and Wellness (GHW)	1.5 General Education Knowledge Domain	3
	13.5-17.5	16-18

Total Credits 128-134

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100, CAS 100A, CAS 100B, or CAS 100C (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

² In order to be eligible for entrance to the Materials Science and Engineering major, a student must have: 1) Attained at least a 2.00 cumulative grade-point average. 2) Completed CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), MATH 140 GQ(4), MATH 141 GQ(4), MATH 220(2) and PHYS 211(4); earned a grade of C or better in each of these courses; and earned a combined grade point average of at least 2.50 in these courses. (Note: If courses are repeated, only the higher grade will be used in this calculation.)

³ It is recommended to take STAT 401 only if the student has prior experience with statistics. Otherwise, students should take IE 424.

⁴ Students are required to choose either MATSE 493W (3) or MATSE 494W (3) as their capstone requirement. MATSE 493W involves a group project and all 3 credits are taken in a single semester in the

final year of study. MATSE 494W, the individual research thesis, is typically split between fall and spring semesters.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Advising Notes:

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Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.

Materials Science and Engineering, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MATH 140 (GQ) ^{‡#†2}	4	MATH 141 (GQ) ^{‡#†2}	4
CHEM 110 (GN) ^{*#†2}	3	MATSE 112 or CHEM 112 (GN) ^{*#†2}	3
CHEM 111 (GN) ^{*#†2}	1	CHEM 113 ^{*#2}	1
CAS 100, CAS 100A, CAS 100B, or CAS 100C (GWS) ^{‡†1}	3	PHYS 211 (GN) ^{*#†2}	4
General Education Knowledge Domain	3	ENGL 15, 30H, or ESL 15 (GWS) ^{‡†}	3
General Education Knowledge Domain	3	General Education Health and Wellness (GHW)	1.5
	17		16.5

Second Year

Fall	Credits	Spring	Credits
PHYS 212 (GN) [†]	4	ENGL 202C (GWS) ^{‡†}	3
CHEM 202	3	MATH 251	4
MATH 220 ^{*#2}	2	MATSE 202 (online) [*]	3
MATH 231	2	General Education Knowledge Domain	3
MATSE 201 (online) [*]	3	General Education Knowledge Domain	3
General Education Knowledge Domain	3	General Education Health and Wellness (GHW)	1.5
	17		17.5

Third Year

Fall	Credits	Spring	Credits
MATSE 400 [*]	3	MATSE 402 [*]	3
MATSE 401 [*]	3	MATSE 419	3
MATSE 430 [*]	3	MATSE 492W (Writing across the curriculum) [*]	3
MATSE 460	1	MATSE 462	1
MATSE 436	3	MATSE 413	3
CMPSC 200 or MATSE 219	3	MATSE Specialization Course 1 from Department List	3
	16		16

Fourth Year

Fall	Credits	Spring	Credits
MATSE 494W or 493W (Writing across the curriculum, can be taken fall or spring of fourth year)	0-3	MATSE 494W or 493W (Writing across the curriculum, can be taken fall or spring of fourth year)	3-0
MATSE Specialization Course 2 from Department List	3	MATSE Specialization Course 3 from Department List	3

Technical Elective 1	3 MATSE Specialization Course 4 from Department List	3
Technical Elective 2	3 Technical Elective 3	3
Materials Senior Processing Laboratory (can be taken fall or spring)	1 Technical Elective 4	3
IE 424	3 General Education Knowledge Domain	3
	13-16	18-15

Total Credits 131

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Course is an Entrance to Major requirement

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