

4-Year Degree Plan
Bachelor of Science (B.S.) in Materials
Science & Manufacturing with
Computational Concentration



Catalog: 2024-2025

Type: Freshman

Last updated: 03/25/2024

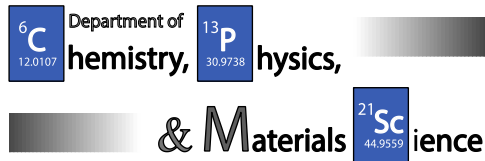
This Plan illustrates how students can meet degree course requirements in four years. Some courses listed below may be taken in an alternate order. Consider prerequisites, prior credit, course availability, and student needs in developing the individual plan*. Courses fulfilling requirements are listed on the reverse. For information about prerequisites and other program requirements, consult the appropriate Catalog Program of Study and an advisor. Note: NC community college transfers should consult one of the transfer plans.

Year/Term	Course/Requirement	Cr	Pre	Req.	Note/Equivalent	Year/Term	Course/Requirement	Cr	Pre	Req.	Note/Equivalent
Year 1	Fall Semester	16				Year 1	Spring Semester	15			
	ENGL 110 - English Composition I	3	N	2.1			MATH 142 - Calculus with Analytic Geometry I	4	Y	9	
	MATH 131 - Algebra and Trigonometry	3	Y	3.2			CHEM 141 - General Chemistry I Lecture	3	Y	5.1	
	UNIV 101 - Freshman Seminar I	1	N	1.1			CHEM 141L - General Chemistry I Lab	1	Y	5.1	
	Critical Thinking (PHIL 110 Or PHIL 220)	3	N	3.1			ENGL 120 - English Composition II	3	Y	4	
	Core Humanities and Creative Arts	3	C	6			UNIV 102 - Freshman Seminar II	1	N	1.1	
	CSC 105 - Intro to Computer Sci for Tech Majors	3	N	9			Core Global Literacy	3	C	7	
Year 2	Fall Semester	15				Year 2	Spring Semester	14			
	MATH 241 - Calculus with Analytic Geometry II	4	Y	9			PHYS 126 - College Physics II	3	Y	9	
	PHYS 125 - College Physics I	3	Y	9			PHYS 126L - College Physics II Lab	1	Y	9	
	PHYS 125L - College Physics I Lab	1	Y	9			MATS 200 - Mater. Sci & Manuf. Seminar	1	Y	10	
	CHEM 161 - General Chemistry II Lecture	3	Y	5.1			MATS 202 - Introduction to Materials Science	3	Y	10	
	CHEM 161L - General Chemistry II Lab	1	Y	5.1			Oral Communication (BADM 215 Or SPEE 200)	3	Y	2.2	
	Core Social Sciences	3	N	5.2			Core Ethics and Civic Engagement	3	C	8	
Year 3	Fall Semester	16				Year 3	Spring Semester	15			
	PHYS 212 - Heat (Statistical Thermodynamics)	4	Y	9			PHYS 311 - Electricity and Magnetism I	3	Y	9	
	MATS 340/PHYS 340 - Math Methods for Physicist, Chemist and Materials Scientist	3	Y	11			MATS 350/PHYS 350 - Solid State Physics	3	Y	11	
	MATS 204 - Properties of Engineering Materials	3	Y	10			MATS 331 - Num. Methods in Mater. Proc.	3	Y	11	
	MNFG 250 - Introduction to Manufacturing	3	Y	10			MNFG 350 - Comp.-Aided Design & Manuf.	3	Y	10	
	MATS 303 - Data Visualization and Graphics	3	Y	11			MNFG 360 - Principles of Manufacturing	3	Y	10	
Year 4	Fall Semester	15				Year 4	Spring Semester	14			
	MATS 421 - Comp. Methods in Material Science and Manufacturing.	4	Y	11			MNFG 461 - Machine Learning and Artificial Intelligence for Mat. Sci. and Manuf.	3	Y	11	
	MNFG 400 - Mater. Selection for Manuf.	3	Y	10			MNFG 470 - Manufacturing Process	3	Y	10	
	MATS 450 - Undergraduate Research	3	Y	10			MNFG 490 - Manuf. Design Senior Project	3	Y	10	
	MNFG 300 - Additive Manufacturing	3	Y	10			Core Transitional Life	2	N	1.2	
	MNFG 300L - Additive Manufacturing Lab	1	Y	10			Elective	3	Y	12	
	MNFG 440 - Intro. to Manuf. Design for Senior Proj.	1	Y	10							

DEGREE TOTAL: 120 CREDITS

*See next page for requirements and notes

Materials Science is an interdisciplinary field studying materials synthesis, fabrication, structures, properties and applications, and manufacturing is a designed procedure that results in mechanical, physical or chemical changes to a starting working material, yielding new products. **Materials Science & Manufacturing General Concentration** prepares you for careers that require the knowledge of materials fabrication, processing, properties, applications and various manufacturing techniques, with an emphasis on computational skills.



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Requirements/Notes

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- Pre.** Prerequisite: Y (Yes) - Course/Requirement has prerequisite(s). N (No) - Course/Requirement has no prerequisite. C (Check) - Some courses satisfying requirement have prerequisites and/or courses have non-prerequisite restrictions. Check Catalog for details.
- * Recommended. For transfer courses, following recommendations will reduce or eliminate the need to take additional courses at FSU. For FSU courses, following recommendations will optimize the student's educational experience. If in doubt, consult an advisor.
- 1.1. Transitional UNIV. (UNIV 101 And UNIV 102) Or UNIV 110 Or UNIV 111. UNIV 101-UNIV 102 required for all first-time students; UNIV 110 required for transfer students with fewer than 30 transfer credits. Students do not earn credit if requirement is waived. UNIV 111 may be required based on academic performance.
 - 1.2. Transitional Life. ENTR 100 Or FINC 100 Or GEOG 110 Or HEED 112 Or PEDU 101 Or PEDU 107 Or PEDU 112 Or PEDU 120 Or PEDU 122 Or PEDU 130 Or PEDU 132 Or PEDU 140.
 - 2.1. Written Communication. ENGL 110.
 - 2.2. Oral Communication. BADM 215 Or SPEE 200.
 - 3.1. Critical Thinking. PHIL 110 Or PHIL 220. Not required for students with 60+ transfer credits. Students do not earn credit if requirement is waived.
 - 3.2. Quantitative Reasoning. MATH 131. MATH 121 may be required based on profile scores. Some core courses require a one-hour lab.
 4. Information Literacy. ENGL 120.
 - 5.1. Natural Sciences. CHEM 141 And CHEM 141L And CHEM 161 And CHEM 161L.
 - 5.2. Social Sciences. CRJC 210 Or ECON 211 Or ECON 212 Or GEOG 210 Or HIST 212 Or POLI 200 Or POLI 210 Or POLI 220 Or PSYC 210 Or SOCI 210.
 6. Humanities and Creative Arts. ART 210 Or COMM 220 Or ENGL 220 Or ENGL 223 Or ENGL 240 Or ENGL 250 Or ENGL 253 Or HIST 210 Or HUMN 211 Or HUMN 212 Or MUSI 210 Or MUSI 225 Or MUSI 260 Or PHIL 210 Or RELI 215 Or THEA 203.
 7. Global Literacy. ANTH 210 Or ART 150 Or ART 215 Or BADM 210 Or CHIN 110 Or CHIN 120 Or ENGL 211 Or ENGL 212 Or FREN 110 Or FREN 120 Or GEOG 220 Or GLBL 200 Or HIST 110 Or HIST 120 Or HIST 270 Or PHIL 211 Or POLI 230 Or SOCI 150 Or SPAN 110 Or SPAN 112 Or SPAN 120 Or SPAN 122 Or THEA 242 Or YORU 110 Or YORU 120. Not required for students with 30+ transfer credits from a foreign institution. Students do not earn credit if requirement is waived.
 8. Ethics and Civic Engagement. BADM 220 Or COHE 200 Or CRJC 203 Or EDUC 211 Or ENGL 232 Or ENGL 233 Or ETCE 101 Or ETCE 102 Or ETCE 103 Or ETCE 200 Or GEOG 270 Or HCM 200 Or HIST 211 Or PHIL 120 Or PHIL 212 Or PNUR 210 Or POLI 110 Or POLI 150 Or SPTM 210 Or SWRK 220. Not required for students with 60+ transfer credits. Students do not earn credit if requirement is waived.
 9. Correlative Requirements.
 10. MS&M Core course.
 11. Concentration course.
 12. Elective course.