

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

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
<b>Year 1</b>	<b>Fall Semester</b>	<b>15</b>				<b>Year 1</b>	<b>Spring Semester</b>	<b>15</b>			
	ENGL 110 - English Composition I	3	N		2.1		BIOL 150 - Principles of Biology	3	Y		9.2
	MATH 131 - Algebra and Trigonometry	3	Y		3.2		BIOL 150L - Principles of Biology Lab	1	Y		9.2
	UNIV 101 - Freshman Seminar I	1	N		1.1		CHEM 141 - General Chemistry I Lecture	3	Y		5.1
	Critical Thinking (PHIL 110 Or PHIL 220)	3	N		3.1		CHEM 141L - General Chemistry I Lab	1	Y		5.1
	Core Humanities and Creative Arts	3	C		6		ENGL 120 - English Composition II	3	Y		4
	Core Transitional Life	2	N		1.2		UNIV 102 - Freshman Seminar II	1	N		1.1
							Core Global Literacy	3	C		7
<b>Year 2</b>	<b>Fall Semester</b>	<b>17</b>				<b>Year 2</b>	<b>Spring Semester</b>	<b>16</b>			
	CHEM 161 - General Chemistry II Lecture	3	Y		5.1		CHEM 200 - Chemical Lit: Search & Analysis	2	Y		9.1
	CHEM 161L - General Chemistry II Lab	1	Y		5.1		CHEM 223 - Organic Chemistry I Lecture	3	Y		9.1
	MATH 142 - Calculus with Analytic Geometry I	4	Y		9.2		CHEM 223L - Organic Chemistry I Lab	1	Y		9.1
	MATS 160 - Introduction to Materials Science	3	Y		10		MATH 241 - Calculus with Analytic Geometry II	4	Y		9.2
	Oral Communication (BADM 215 Or SPEE 200)	3	Y		2.2		MATS 204 - Properties of Engineering Materials	3	Y		10
	Core Social Sciences	3	N		5.2		Core Ethics and Civic Engagement	3	C		8
<b>Year 3</b>	<b>Fall Semester</b>	<b>16</b>				<b>Year 3</b>	<b>Spring Semester</b>	<b>16</b>			
	CHEM 211 - Analytical Chemistry Lecture	3	Y		9.1		BICH 411 - Biochemistry I	3	Y		9.1
	CHEM 211L - Analytical Chemistry Lab	1	Y		9.1		CHEM 311 - Instrumental Analysis Lecture	3	Y		9.1
	CHEM 225 - Organic Chemistry II	3	Y		9.1		CHEM 311L - Instrumental Analysis Laboratory	2	Y		9.1
	CHEM 225L - Organic Chemistry II Lab	1	Y		9.1		CHEM 390 - Research I	1	N		9.1
	MATH 242 - Calculus with Analytic Geometry III	4	Y		9.2		PHYS 126 - College Physics II	3	Y		9.2
	PHYS 125 - College Physics I	3	Y		9.2		PHYS 126L - College Physics Lab II	1	Y		9.2
	PHYS 125L - College Physics I Lab	1	Y		9.2		MATS 260 - Introduction to Nanomaterials	3	Y		10
<b>Year 4</b>	<b>Fall Semester</b>	<b>12</b>				<b>Year 4</b>	<b>Spring Semester</b>	<b>13</b>			
	CHEM 313 - Physical Chemistry I	3	Y		9.1		CHEM 314 - Physical Chemistry II	3	Y		9.1
	CHEM 313L - Physical Chemistry I Lab	1	Y		9.1		CHEM 314L - Physical Chemistry II Lab	1	Y		9.1
	CHEM 421 - Inorganic Chemistry	3	Y		9.1		CHEM 499 - Chemistry Capstone	3	Y		9.1
	CHEM 491 - Research II	2	Y		9.1		MATS 311 - Scanning Electron Microscopy and Microanalysis	3	Y		10
	MATS 301 - Introduction to Polymer Science	3	Y		10		MATS 321 - X-Ray Diffraction Analysis	3	Y		10

**DEGREE TOTAL: 120 CREDITS**

Newly engineered materials (e.g., plastics used in surgical implants, high-performance ceramics used in the international space station, new steel alloys that are stronger and lighter than steel, biodegradable plastics etc.) play vital roles in modern technology and economy. Materials scientists study the structure, properties, and behavior of these materials to improve their qualities and adapt them for new applications (e.g. electronics, sensors, biological implants, transportation vehicles, medical devices etc.). **Materials Science Concentration** prepares you for careers that require the knowledge of manufacturing, processing and the fabrication of materials.

\*See next page for requirements and notes

## Requirements/Notes

- 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 129 Or 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 142 And CHEM 161 And CHEM 162.
  - 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.
  - 9.1. Chemistry Courses. BICH 411 And CHEM 200 And CHEM 211 And CHEM 212 And CHEM 223 And CHEM 224 And CHEM 225 And CHEM 226 And CHEM 311 And CHEM 311L And CHEM 313 And CHEM 313L And CHEM 314 And CHEM 314L And CHEM 390 And CHEM 421 And CHEM 491 And CHEM 499.
  - 9.2. Correlative Requirements. BIOL 150 And BIOL 150L And MATH 130 And MATH 142 And MATH 241 And MATH 242 And PHYS 125 And PHYS 125L And PHYS 126 And PHYS 126L.
  10. Concentration. MATS 160 And MATS 204 And MATS 260 And MATS 301 And MATS 311 And MATS 321.