

# Spelman College — Missouri S&T

## General Engineering

Transfer Guide Effective as of Fall 2024

Complete Group 1 - Core Requirements and Group 2 - Major Requirements for major of choice.

### Group 1 - Core Requirements: All Majors Take All Courses

Engineering students take all Group 1 - Core Requirements and Group 2 - Major Requirements for major of choice. Math prerequisites: While they are not part of Missouri S&T engineering degree requirements, algebra and trigonometry skills are critical to success in calculus. To prepare for entry into calculus, students should follow math placement testing and advising recommendations at their college.

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
MATH 231	Calculus I	4	MATH 1214	Calculus I <small>Grade of C or better is required.</small>	4
MATH 232	Calculus II	4	MATH 1215	Calculus II <small>Grade of C or better is required.</small>	4
MATH 324	Calculus III	4	MATH 2222	Calculus III <small>Grade of C or better is required.</small>	4
MATH 365	Differential Equations	4	MATH 3304	Elementary Differential Equations	3
PHY 151 and PHY 241 and PHY 242	Physics I: Mechanics and Physics II: Electricity and Magnetism and Physics III: Optics and Modern Physics <small>*The combination of Spelman PHY 151, 241, and 242 is equivalent to the combination of Missouri S&amp;T PHYSICS 1135 and 2135. All three courses must be taken to satisfy this requirement.</small>	12	PHYSICS 1135* and PHYSICS 2135*	Engineering Physics I and Engineering Physics II <small>Grade of C or better is required. *The combination of Spelman PHY 151, 241, and 242 is equivalent to the combination of Missouri S&amp;T PHYSICS 1135 and 2135. All three courses must be taken to satisfy this requirement.</small>	8
CHE 111, 111L	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab	5
ERG 101	Intro to Engineering	2	FR ENG 1100	Study and Careers in Engineering and Computing	1
ENG 103	First Year Composition	4	ENGLISH 1120	Exposition and Argumentation	3
ECON 242 or ECON 241	Principles of Microeconomics or Principles of Macroeconomics	4	ECON 1100 or ECON 1200	Principles of Microeconomics or Principles of Macroeconomics	3
Total Hours					42
					Total Hours
					35

### Group 2 - Major Requirements: Take All Courses for Major of Choice

Engineering students take all Group 1 - Core Requirements (above) and Group 2 - Major Requirements for chosen major from list below. See course requirements on following pages.

**Aerospace Engineering**  
**Architectural Engineering**  
**Biomedical Engineering/Biomanufacturing or Biomaterials**  
**Ceramic Engineering**  
**Chemical Engineering and Biochemistry Emphasis**  
**Civil Engineering**  
**Computer Engineering**  
**Electrical Engineering**

**Engineering Management**  
**Environmental Engineering**  
**Geological Engineering**  
**Mechanical Engineering**  
**Metallurgical Engineering**  
**Mining Engineering**  
**Nuclear Engineering**  
**Petroleum Engineering**

Engineering Major Requirements are detailed on the following pages.

**Free Electives:** Some programs allow Free Electives as indicated within each major. Free Electives should be selected in consultation with your advisor and may not include remedial/deficiency courses, algebra, trigonometry, pre-calculus, or extra credits in required courses.

**Humanities/Social Science (HSS) Electives:** HSS electives may include any art, English and technical communication, etymology, foreign language, music, philosophy, speech and media studies, or theatre. Your campus may have additional acceptable options. Consult with your advisor or email [transfer@mst.edu](mailto:transfer@mst.edu) with questions. See Missouri S&T online catalog at <https://catalog.mst.edu/undergraduate/degreeprogramsandcourses/> for more information.

## Aerospace Engineering Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
HIS 303 or HIS 211 or HIS 212 or PSC 201	Making of the Modern World or Survey of American History I or Survey of American History II or National Government in the US	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
MAT 214	Linear Algebra and Applications	4	MATH 3108	Linear Algebra I <small>Will satisfy the Advanced Math/Comp Sci elective requirement.</small>	3
	Literature Elective	3		Literature Elective	3
Ethics	Ethics Elective	3	Ethics	Ethics Elective	3
	<small>Any engineering, business, bio, social ethics approved by advisor.</small>			<small>Any engineering, business, bio, social ethics approved by advisor.</small>	
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	13		Group 2 Major Requirements	12
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	55		Total Hours*	47

\*S&T advisor permission is required to transfer more than 68 credits toward the S&T Aerospace Engineering degree.

## Architectural Engineering Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
HIS 303* (or HIS 211 or HIS 212)	Making of the Modern World* (or Survey of American History I or Survey of American History II) <small>*HIS 303 is preferred; 211 or 212 will also be accepted.</small>	3	HISTORY 1200* (or HISTORY 1300 or HISTORY 1310)	Modern Western Civilization* (or American History to 1877 or American History since 1877) <small>*HISTORY 1200 is preferred; 1300 or 1310 will also be accepted.</small>	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	6		Group 2 Major Requirements	6
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	48		Total Hours*	41

\*S&T advisor permission is required to transfer more than 69 credits toward the S&T Architectural Engineering degree.

## Biomedical Engineering-Biomanufacturing Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
HIS 303 or HIS 211 or HIS 212 or PSC 201	Making of the Modern World or Survey of American History I or Survey of American History II or National Government in the US	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CHE 112, 112L	General Chemistry II (3) and Lab (1)	4	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not an S&amp;T degree requirement. Will transfer as general credit.</small>	3
CHEM 231,233L	Organic Chemistry I and Lab	5	CHEM 2210, 2219	Organic Chemistry I and Lab	4
CHE 232, 234L or BIO 110 or	Organic Chemistry II (4) and Lab (1) or Biological Communities, Evolution, and Biodiversity (4)	4	CHEM 2220, 2229 or BIO SCI 1113, 1219	Organic Chemistry II and Lab or General Biology and Lab <small>Applies to degree as Track Elective.</small>	4
BIO 120	Cellular Dynamics	4	BIO SCI 2213	Cell Biology	3
CIS 121 or CIS 123 or CIS 131	Computer Science I or Computer Science I: Python or Computer Science I: Matlab	4	CS 1500	Computational Problem Solving	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	27		Group 2 Major Requirements	23
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	69		Total Hours*	58

\*S&T advisor permission is required to transfer more than 68 credit hours toward the degree.

## Biomedical Engineering-Biomaterials Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
HIS 303 or HIS 211 or HIS 212 or PSC 201	Making of the Modern World or Survey of American History I or Survey of American History II or National Government in the US	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CHE 112, 112L	General Chemistry II (3) and Lab (1)	4	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not an S&amp;T degree requirement. Will transfer as general credit.</small>	3
CHEM 231,233L	Organic Chemistry I and Lab	5	CHEM 2210, 2219*	Organic Chemistry I and Lab* <small>*CHEM 2219 Lab applies to the degree as a Track Elective (non-engineering).</small>	4
CHE 232, 234L	Organic Chemistry II (4) and Lab (1)	5	CHEM 2220, 2229*	Organic Chemistry II and Lab* <small>CHEM 2229 Lab applies to the degree as a Track Elective (non-engineering).</small>	4
BIO 110	Biological Communities, Evolution, and Biodiversity	4	BIO SCI 1113*, 1219*	General General Biology* and Lab* <small>*Applies to degree as Track Elective (Non-engineering).</small>	4
BIO 120	Cellular Dynamics	4	BIO SCI 2213	Cell Biology	3
CIS 121 or CIS 123 or CIS 131	Computer Science I or Computer Science I: Python or Computer Science I: Matlab	4	CS 1500	Computational Problem Solving	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	29		Group 2 Major Requirements	24
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	71		Total Hours*	59

\*S&T advisor permission is required to transfer more than 65 credits toward the S&T Biomedical Engineering degree.

## Ceramic Engineering Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
HIS 303 or HIS 211 or HIS 212 or PSC 201	Making of the Modern World or Survey of American History I or Survey of American History II or National Government in the US	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CHE 231 or CHE 421	Organic Chemistry I (4) or Inorganic Chemistry (3)	3	CHEM 2210 or CHEM 2310	Organic Chemistry I (3) or Inorganic Chemistry I (3) <i>Will satisfy the advanced chemistry elective requirement.</i>	3
CHE 112, 112L	General Chemistry II (3) and Lab (1)	4	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <i>*CHEM 1510 is not an S&amp;T degree requirement. Will transfer as general credit.</i>	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	19		Group 2 Major Requirements	18
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	61		Total Hours*	53

\*S&T advisor permission is required to transfer more than 68 credits toward the S&T Ceramic Engineering degree.

## Chemical Engineering or Chemical Engineering - Biochemical Engineering Emphasis Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
HIS 303 or HIS 211 or HIS 212 or PSC 201	Making of the Modern World or Survey of American History I or Survey of American History II or National Government in the US	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CHE 112, 112L	General Chemistry II (3) and Lab (1)	4	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <i>*CHEM 1510 is not an S&amp;T degree requirement. Will transfer as general credit.</i>	3
CHEM 231,233L	Organic Chemistry I and Lab	5	CHEM 2210, 2219*	Organic Chemistry I and Lab* <i>*The lab will apply to the degree as 1 of the 9 science elective credits (below).</i>	4
CHE 232 or CHE 301, 301L or BIO 120 or CHE 410 or	Organic Chemistry II or Analytical Chemistry and Lab or Cell Biology or Biochemical Principles or <i>Select up to 8 hours from these options.</i>	8	CHEM 2220 or CHEM 2510 or BIO SCI 2213 or CHEM 4610	Organic Chemistry II (3) or Analytical Chemistry (4) or Cell Biology (3) or General Biochemistry (4) <i>Select up to 8 hours from these options. Will satisfy up to 8 of the 9 required science elective credits (above).</i>	8
CIS 121 or CIS 123 or CIS 131	Computer Science I or Computer Science I: Python or Computer Science I: Matlab	4	CS 1500	Computational Problem Solving	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	27		Group 2 Major Requirements	24
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	69		Total Hours*	59

\*S&T advisor permission is required to transfer more than 68 credits toward the S&T Chemical Engineering degree.

## Civil Engineering Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
HIS 303 or HIS 211 or HIS 212 or PSC 201	Making of the Modern World or Survey of American History I or Survey of American History II or National Government in the US	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	6		Group 2 Major Requirements	6
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	48		Total Hours*	41

\*S&T advisor permission is required to transfer more than 69 credits toward the S&T Civil Engineering degree.

## Computer Engineering Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
HIS 303 or HIS 211 or HIS 212 or PSC 201	Making of the Modern World or Survey of American History I or Survey of American History II or National Government in the US	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
MAT 234	Discrete Mathematics	4	CS 1200	Discrete Math for Computer Science	3
CIS 121 or CIS 123 or CIS 131	Computer Science I or Computer Science I: Python or Computer Science I: Matlab	4	CS 1500	Computational Problem Solving	3
CHE 231 or BIO 120	Organic Chemistry I or Cell Biology	4	CHEM 2210 or BIO SCI 2213	Organic Chemistry I (4) or Cell Biology (3) <i>Will satisfy a required engineering science elective.</i>	3
MAT 214 or MAT 233	Linear Algebra and Applications or Foundations of Mathematics	4	MATH 3108 or MATH 3109	Linear Algebra or Foundations of Mathematics <i>Will satisfy a required math elective.</i>	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Electives	Maximum Free Electives	3	Electives	Maximum Free Electives	3
	Group 2 Major Requirements	25		Group 2 Major Requirements	21
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	67		Total Hours*	56

\*S&T advisor permission is required to transfer more than 68 credits toward the S&T Computer Engineering degree.

## Electrical Engineering Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
HIS 303 or HIS 211 or HIS 212 or PSC 201	Making of the Modern World or Survey of American History I or Survey of American History II or National Government in the US	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CIS 121 or CIS 123 or CIS 131	Computer Science I or Computer Science I: Python or Computer Science I: Matlab	4	CS 1500	Computational Problem Solving	3
CHE 231 or BIO 120	Organic Chemistry I or Cell Biology	4	CHEM 2210 or BIO SCI 2213	Organic Chemistry I (4) or Cell Biology (3) <i>Will satisfy a required engineering science elective.</i>	3
MAT 214	Linear Algebra and Applications	4	MATH 3108	Linear Algebra	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Electives	Maximum Free Electives	3	Electives	Maximum Free Electives	3
	Group 2 Major Requirements	21		Group 2 Major Requirements	18
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	63		Total Hours*	53

\*S&T advisor permission is required to transfer more than 68 credits toward the S&T Electrical Engineering degree.

## Engineering Management Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
PSY 200	General Psychology	4	PSYCH 1101	General Psychology	3
HIS 303 or HIS 211 or HIS 212 or PSC 201	Making of the Modern World or Survey of American History I or Survey of American History II or National Government in the US	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	3	Electives	Maximum Free Electives	0
	Group 2 Major Requirements	13		Group 2 Major Requirements	9
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	55		Total Hours*	61

\*S&T advisor permission is required to transfer more than 68 credits toward the S&T Engineering Management degree.

## Environmental Engineering Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
HIS 303 or HIS 211 or HIS 212	Making of the Modern World or Survey of American History I or Survey of American History II	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310	Modern Western Civilization or American History to 1877 or American History since 1877	3
CHE 112, 112L	General Chemistry II (3) and Lab (1)	4	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <i>*CHEM 1510 is not an S&amp;T degree requirement. Will transfer as general credit.</i>	3
BIO 110	Biological Communities, Evolution, and Biodiversity	4	BIO SCI 1113	General Biology	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	14		Group 2 Major Requirements	12
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	56		Total Hours*	47

\*S&T advisor permission is required to transfer more than 69 credits toward the S&T Environmental Engineering degree.

## Geological Engineering Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
HIS 303 or HIS 211 or HIS 212 or PSC 201	Making of the Modern World or Survey of American History I or Survey of American History II or National Government in the US	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CIS 121 or CIS 123 or CIS 131	Computer Science I or Computer Science I: Python or Computer Science I: Matlab	4	CS 1500	Computational Problem Solving	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	13		Group 2 Major Requirements	12
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	55		Total Hours*	47

\*S&T advisor permission is required to transfer more than 68 credits toward the S&T Geological Engineering degree.

## Mechanical Engineering Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
HIS 303 or HIS 211 or HIS 212 or PSC 201	Making of the Modern World or Survey of American History I or Survey of American History II or National Government in the US	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
MAT 214	Linear Algebra and Applications	4	MATH 3108	Linear Algebra I Will satisfy the Advanced Math/Statistics elective requirement.	3
	Literature Elective	3		Literature Elective	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	13		Group 2 Major Requirements	12
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	55		Total Hours*	47

\*S&T advisor permission is required to transfer more than 68 credits toward the S&T Mechanical Engineering degree.

## Metallurgical Engineering Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
HIS 303 or HIS 211 or HIS 212 or PSC 201	Making of the Modern World or Survey of American History I or Survey of American History II or National Government in the US	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CHE 112, 112L	General Chemistry II (3) and Lab (1)	4	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) *CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.	3
CHE 231 or CHE 421 or CHE 345 or MAT 367	Organic Chemistry I (4) or Inorganic Chemistry (3) or Physical Chemistry (3) or Applied Mathematics (4)	3	CHEM 2210 or CHEM 2310 or CHEM 3410 or MATH 5325	Organic Chemistry I (4) or Inorganic Chemistry I (3) or Chemical Thermodynamics I (3) or Partial Differential Equations (3) Not specifically required for the degree but will satisfy Out-of-Department Technical Elective Requirement.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Electives	Maximum Free Electives	5	Electives	Maximum Free Electives	3
	Group 2 Major Requirements	21		Group 2 Major Requirements	18
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	63		Total Hours*	53

\*S&T advisor permission is required to transfer more than 68 credits toward the S&T Metallurgical Engineering degree.

## Mining Engineering Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
HIS 303 or HIS 211 or HIS 212 or PSC 201	Making of the Modern World or Survey of American History I or Survey of American History II or National Government in the US	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	9		Group 2 Major Requirements	9
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	51		Total Hours*	44

\*S&T advisor permission is required to transfer more than 68 credits toward the S&T Mining Engineering degree.

## Nuclear Engineering Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
HIS 303 or HIS 211 or HIS 212 or PSC 201	Making of the Modern World or Survey of American History I or Survey of American History II or National Government in the US	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
MAT 214 or MAT 233	Linear Algebra and Applications or Foundations of Mathematics	4	MATH 3108 or MATH 3109	Linear Algebra or Foundations of Mathematics	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Electives	Maximum Free Electives	6	Electives	Maximum Free Electives	6
	Group 2 Major Requirements	19		Group 2 Major Requirements	18
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	61		Total Hours*	53

\*S&T advisor permission is required to transfer more than 68 credits toward the S&T Nuclear Engineering degree.

## Petroleum Engineering Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
HIS 303 or HIS 211 or HIS 212 or PSC 201	Making of the Modern World or Survey of American History I or Survey of American History II or National Government in the US	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	9		Group 2 Major Requirements	9
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	51		Total Hours*	44

\*S&T advisor permission is required to transfer more than 69 credits toward the S&T Petroleum Engineering degree.