

Spelman College — Missouri S&T
General Engineering Transfer Guide
 Effective as of Fall 2017

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&T</u>		
MATH 231	Calculus I	4	MATH 1214	Calculus for Engineers I	Grade of C or better is required.	4
MATH 232	Calculus II	4	MATH 1215	Calculus for Engineers II	Grade of C or better is required.	4
MATH 324	Calculus III	4	MATH 2222	Calculus with Analytic Geometry III	Grade of C or better is required.	4
MATH 365	Differential Equations	4	MATH 3304	Elementary Differential Equations		3
PHY 151 and	Physics I: Mechanics and	4				
PHY 241 and	Physics II: Electricity and Magnetism and	4	PHYSICS 1135 and	Engineering Physics I or		4
PHY 242	Physics III: Optics and Modern Physics	4	PHYSICS 2135	Engineering Physics II	Grade of C or better is required.	
CHEM	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		1
ENG 103	First Year Composition	4	ENGLISH 1120	Exposition and Argumentation		3
ECON 242 or	Principles of Microeconomics or	4	ECON 1100 or	Principles of Microeconomics or		3
ECON 241	Principles of Macroeconomics		ECON 1200	Principles of Macroeconomics		3
Total Hours			30			Total Hours 31

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
Ceramic Engineering
Chemical Engineering
**Chemical Engineering/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 history, economics, political science, sociology, psychology, philosophy, fine art, literature, or foreign language. Missouri S&T approved HSS courses are listed at ugs.mst.edu. Your campus may have additional acceptable options. Consult with your advisor or email transfer@mst.edu with questions.

Aerospace Engineering Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIS 211 or PSC 201 CIS 121	Survey of American History to 1877 or National Government in the US Computer Science I	4	HISTORY 1300 or POL SCI 1200 CS 1971, 1981	American History to 1877 or Government Intro to Programming Method and Lab (C++) Linear Algebra I (Will satisfy the Advanced Math/Comp Sci elective requirement.)	3 3 3 3
MAT 214	Linear Algebra and Applications	4	MATH 3108		3
	<i>See your advisor for course options.</i>			Literature Elective	3
	<i>See your advisor for course options.</i>			Ethics Elective	3
	<i>No free electives applied to the degree.</i>			Maximum Free Electives	0
	Group 2 Major Requirements	12		Group 2 Major Requirements	15
	Group 1 Core Requirements	30		Group 1 Core Requirements	31
	Total Hours	42		Total Hours*	46

*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&T</u>		
HIS 211	Survey of American History to 1877	4	HISTORY 1300	American History to 1877	3
	<i>No free electives applied to the degree.</i>			Maximum Free Electives	0
	Group 2 Major Requirements	4		Group 2 Major Requirements	3
	Group 1 Core Requirements	30		Group 1 Core Requirements	31
	Total Hours	34		Total Hours*	34

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

Ceramic Engineering Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIS 211 or PSC 201	Survey of American History to 1877 or National Government in the US	4	HISTORY 1300 or POL SCI 1200	American History to 1877 or Government	3
CHEM 231,233L	Organic Chemistry I and Lab	5	CHEM 2210/2219	Organic Chemistry I and Lab <small>(Not a specific requirement. Will satisfy technical elective requirement.)</small>	5
CHEM 112,112L	General Chemistry II and Lab	4	CHEM 1320 HSS Elective	General Chemistry II	3
<i>See your advisor for course options.</i>			Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language		
<i>See your advisor for course options.</i>			Humanities/Social Science Elective		
<i>No free electives applied to the degree.</i>			Maximum Free Electives		
Group 2 Major Requirements		13	Group 2 Major Requirements		17
Group 1 Core Requirements		30	Group 1 Core Requirements		31
Total Hours		43	Total Hours*		48

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

Chemical Engineering Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIS 211 or PSC 201	Survey of American History to 1877 or National Government in the US	4	HISTORY 1300 or POL SCI 1200	American History to 1877 or Government	3
CHEM 112,112L	General Chemistry II and Lab	4	CHEM 1320	General Chemistry II	5
CHEM 231,233L	Organic Chemistry I and Lab	5	CHEM 2210	Organic Chemistry I	3
CHEM 232,234L	Organic Chemistry II and Lab	5	CHEM 2220	Organic Chemistry II (Will satisfy science elective requirement.)	3
CIS 121	Computer Science I	4	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
<i>See your advisor for course options.</i>			Humanities/Social Science Elective		
<i>See your advisor for course options.</i>			Humanities/Social Science Elective		
<i>No free electives applied to the degree.</i>			Maximum Free Electives		
Group 2 Major Requirements		22	Group 2 Major Requirements		23
Group 1 Core Requirements		30	Group 1 Core Requirements		31
Total Hours		52	Total Hours*		54

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

Chemical Engineering - Biochemical Engineering Emphasis Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIS 211 or PSC 201	Survey of American History to 1877 or National Government in the US	4	HISTORY 1300 or POL SCI 1200	American History to 1877 or Government	3
CHEM 112,112L	General Chemistry II and Lab	4	CHEM 1320	General Chemistry II	5
CHEM 231,233L	Organic Chemistry I and Lab	5	CHEM 2210	Organic Chemistry I	3
CHEM 232,234L	Organic Chemistry II and Lab	5	CHEM 2220	Organic Chemistry II (Will satisfy science elective requirement.)	3
CIS 121	Computer Science I	4	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
<i>See your advisor for course options.</i>			Humanities/Social Science Elective		
<i>See your advisor for course options.</i>			Humanities/Social Science Elective		
<i>No free electives applied to the degree.</i>			Maximum Free Electives		
Group 2 Major Requirements		22	Group 2 Major Requirements		23
Group 1 Core Requirements		30	Group 1 Core Requirements		31
Total Hours		52	Total Hours*		54

*S&T advisor permission is required to transfer more than 71 credits toward the S&T Chemical/Biochemical Engineering degree.

Civil Engineering Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIS 211 or PSC 201	Survey of American History to 1877 or National Government in the US	4	HISTORY 1300 or POL SCI 1200	American History to 1877 or Government	American 3
<i>See your advisor for course options.</i>				Humanities/Social Science Elective	3
<i>No free electives applied to the degree.</i>				Maximum Free Electives	0
	Group 2 Major Requirements	4		Group 2 Major Requirements	6
	Group 1 Core Requirements	30		Group 1 Core Requirements	31
	Total Hours	34		Total Hours*	37

*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&T</u>		
HIS 211 or PSC 201	Survey of American History to 1877 or National Government in the US	4	HISTORY 1300 or POL SCI 1200	American History to 1877 or Government	American 3
MAT 234	Discrete Mathematics	4	CS 1200	Discrete Math for Computer Science	3
CIS 122	Computer Science II	4	CS 1575	Data Structures	3
MAT 214	Linear Algebra and Applications	4	MATH 3108	Linear Algebra (Will satisfy a required math elective.)	3
<i>See your advisor for course options.</i>				Humanities/Social Science Elective	3
<i>See your advisor for course options.</i>				Maximum Free Electives	3
	Group 2 Major Requirements	16		Group 2 Major Requirements	18
	Group 1 Core Requirements	30		Group 1 Core Requirements	31
	Total Hours	46		Total Hours*	49

*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&T</u>		
HIS 211 or PSC 201	Survey of American History to 1877 or National Government in the US	4	HISTORY 1300 or POL SCI 1200	American History to 1877 or Government	American 3
MAT 214	Linear Algebra and Applications	4	MATH 3108	Linear Algebra	3
<i>See your advisor for course options.</i>				Humanities/Social Science Elective	3
<i>See your advisor for course options.</i>				Maximum Free Electives	3
	Group 2 Major Requirements	8		Group 2 Major Requirements	12
	Group 1 Core Requirements	30		Group 1 Core Requirements	31
	Total Hours	38		Total Hours*	43

*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&T</u>		
PSY 200	General Psychology	4	PSYCH 1101	General Psychology	3
HIS 211 or PSC 201	Survey of American History to 1877 or National Government in the US	4	HISTORY 1300 or POL SCI 1200	American History to 1877 or American Government	3
			<i>See your advisor for course options.</i>		3
			<i>See your advisor for course options.</i>		3
Group 2 Major Requirements		8	Group 2 Major Requirements		12
Group 1 Core Requirements		30	Group 1 Core Requirements		31
Total Hours		38	Total Hours*		43

*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&T</u>		
HIS 211	Survey of American History to 1877	4	HISTORY 1300	American History to 1877	3
CHEM 112,112L	General Chemistry II and Lab	4	CHEM 1320	General Chemistry II	3
BIO 111	General Biology and Lab	4	BIO SCI 1113	General Biology	4
			<i>See your advisor for course options.</i>		3
			<i>No free electives applied to the degree.</i>		0
Group 2 Major Requirements		12	Group 2 Major Requirements		13
Group 1 Core Requirements		30	Group 1 Core Requirements		31
Total Hours		42	Total Hours*		44

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

Geological Engineering Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIS 211 or PSC 201	Survey of American History to 1877 or National Government in the US	4	HISTORY 1300 or POL SCI 1200	American History to 1877 or American Government	3
BIO 111 or CHEM 112 or CHEM 231	General Biology and Lab or General Chemistry II or Organic Chemistry I	4	BIO SCI 1113 or CHEM 1320 or CHEM 2210	General Biology or General Chemistry II or Organic Chemistry I <small>or any 3-hour course in chemistry, geochemistry, or biology</small>	3
			<i>See your advisor for course options.</i>		3
			<i>See your advisor for course options.</i>		3
			<i>No free electives applied to the degree.</i>		0
Group 2 Major Requirements		8	Group 2 Major Requirements		9
Group 1 Core Requirements		30	Group 1 Core Requirements		31
Total Hours		38	Total Hours*		40

*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&T</u>		
HIS 211 or PSC 201	Survey of American History to 1877 or National Government in the US	4	HISTORY 1300 or POL SCI 1200	American History to 1877 or Government	American 3
					3
CIS 121	Computer Science I	4	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3 4
MAT 214	Linear Algebra and Applications	4	MATH 3108	Linear Algebra I (Will satisfy the Advanced Math/Comp Sci elective requirement.)	3
				Literature Elective	3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>			Maximum Free Electives	0
	Group 2 Major Requirements	4		Group 2 Major Requirements	9
	Group 1 Core Requirements	30		Group 1 Core Requirements	31
	Total Hours	34		Total Hours*	40

*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&T</u>		
HIS 211 or PSC 201	Survey of American History to 1877 or National Government in the US	4	HISTORY 1300 or POL SCI 1200	American History to 1877 or Government	American 3
CHEM 112,112L	General Chemistry II and Lab	4	CHEM 1320	General Chemistry II	3
CHEM 231,233L	Organic Chemistry I and Lab	5	CHEM 2210	Organic Chemistry I <i>Not specifically required for the degree but will satisfy Out-of-Department Technical Elective Requirement</i>	3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>			Maximum Free Electives	5
	Group 2 Major Requirements	13		Group 2 Major Requirements	20
	Group 1 Core Requirements	30		Group 1 Core Requirements	31
	Total Hours	43		Total Hours*	51

*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&T</u>		
HIS 211 or PSC 201	Survey of American History to 1877 or National Government in the US	4	HISTORY 1300 or POL SCI 1200	American History to 1877 or Government	American 3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>			Maximum Free Electives	0
	Group 2 Major Requirements	4		Group 2 Major Requirements	9
	Group 1 Core Requirements	30		Group 1 Core Requirements	31
	Total Hours	34		Total Hours*	40

*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&T</u>		
HIS 211 or PSC 201	Survey of American History to 1877 or National Government in the US	4	HISTORY 1300 or POL SCI 1200	American History to 1877 or Government	American 3
					3
					3
CIS 121	Computer Science I	4	CS 1971, 1981	Intro to Programming Method and Lab (C++)	4
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>			Maximum Free Electives	6
	Group 2 Major Requirements	8		Group 2 Major Requirements	15
	Group 1 Core Requirements	30		Group 1 Core Requirements	31
	Total Hours	38		Total Hours*	46

*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&T</u>		
HIS 211 or PSC 201	Survey of American History to 1877 or National Government in the US	4	HISTORY 1300 or POL SCI 1200	American History to 1877 or Government	American 3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>			Maximum Free Electives	0
	Group 2 Major Requirements	0		Group 2 Major Requirements	6
	Group 1 Core Requirements	30		Group 1 Core Requirements	31
	Total Hours	30		Total Hours*	37

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