

Clark Atlanta University — 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>Clark Atlanta University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
MAT 111	Calculus I	4	MATH 1214	Calculus I	4
MAT 112	Calculus II	4	MATH 1215	Calculus II	4
MAT 211	Calculus III	4	MATH 2222	Calculus III	4
MAT 212	Differential Equations	3	MATH 3304	Elementary Differential Equations	3
PHY 121, 121L and PHY 122, 122L and PHY 123, 123L	Physics I: Mechanics and Lab and Physics II: Electricity and Magnetism and Lab and Physics III: Optics and Modern Physics and Lab	12	PHYSICS 1135 and PHYSICS 2135	Engineering Physics I and Engineering Physics II	8
CHE 111, 111L	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab	5
EGR 101* and EGR 110*	Intro to Engineering (3) and Engineering Computer Graphics (3) <small>*EGR 101 and 110 must be taken in combination to receive credit for both S&T FR ENG 1100 and MECH ENG 1720. MECH ENG 1720 is not an S&T degree requirement for Computer Engineering or Biomedical Engineering.</small>	6	FR ENG 1100* and MECH ENG 1720*	StudyCareers in Engineering and Computing (1) and Engineering Design with Computer Applications (3) <small>*EGR 101 and 110 must be taken in combination to receive credit for both S&T FR ENG 1100 and MECH ENG 1720. MECH ENG 1720 is not an S&T degree requirement for Computer Engineering or Biomedical Engineering.</small>	4
ENG 105	College Composition I	3	ENGLISH 1120	Exposition and Argumentation	3
ECO 252 or ECO 251	Principles of Microeconomics or Principles of Macroeconomics	4	ECON 1100 or ECON 1200	Principles of Microeconomics or Principles of Macroeconomics	3
Total Hours		44	Total Hours		38

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 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>Clark Atlanta University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIS 211 or HIS 212 or PSC 219	History of the US Before 1865 or History of the United States Since 1865 or American Government and Politics	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
ENG 106 or STA 101 or ENG 350	College Composition II or Fundamentals of Speech or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3
CIS 103	Scientific Computation for Simulation Analysis	3	CS 1972, 1982	Intro to MATLAB Programming and Lab	4
EGR 201	Electrical Circuit Analysis	4	EE 2800	Electrical Circuits	3
EGR 211	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 214 or MAT 321	Linear Algebra or Mathematical Probability and Statistics I	3	MATH 3108 or STAT 3115 or	Linear Algebra I or Engineering Statistics <small>Will satisfy the Advanced Math/Comp Sci elective requirement.</small>	3
	Literature Elective	3		Literature Elective	3
PHI 231 or PHI 254	Ethics and Human Values or Bio-Medical Ethics <small>or other engineering, business, bio, social ethics approved by advisor</small>	3	PHILOS 1130	How Should I Live? An Introduction to Ethics <small>or other engineering, business, bio, social ethics approved by advisor</small>	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	25		Group 2 Major Requirements	25
	Group 1 Core Requirements	44		Group 1 Core Requirements	38
	Total Hours	69		Total Hours*	63

*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>Clark Atlanta University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIS 211 or HIS 212	History of the US Before 1865 or History of the United States Since 1865	3	HISTORY 1300 or HISTORY 1310	American History to 1877 or American History since 1877	3
EGR 211	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 311	Engineering Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
MAT 321	Mathematical Probability and Statistics I	3	STAT 3115	Engineering Statistics <small>Will be substituted for STAT 3113.</small>	3
Humanities or Social Science or Communication	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language or one communication course from this list: ENG 106, ENG 350, or STA 101.	3	Humanities or Social Science or Communication	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language or one communication course from this list: ENGLISH 1160, 1600, 3560 or SPMS 1185.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	15		Group 2 Major Requirements	14
	Group 1 Core Requirements	44		Group 1 Core Requirements	38
	Total Hours	59		Total Hours*	52

*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>Clark Atlanta University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
STA 101	Fundamentals of Speech	3	SP&MS 1185	Principles of Speech	3
ENG 350	Technical Writing	3	ENGLISH 3560	Technical Writing	3
HIS 211 or HIS 212 or PSC 219	History of the US Before 1865 or History of the United States Since 1865 or American Government and Politics	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
CHE 112, 112L	General Chemistry II and Lab	4	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</small>	3
CHE 231, 231L	Organic Chemistry I and Lab	4	CHEM 2210, 2219	Organic Chemistry I and Lab	4
CHE 232, 232L or BIO 111, 111L or BIO 312	Organic Chemistry II and Lab or General Biology I and Lab or Genetics I	4	CHEM 2220, 2229 or BIO SCI 1113, 1219 or BIO SCI 2223	Organic Chemistry II and Lab or General Biology and Lab or General Genetics <small>Applies to degree as Track Elective.</small>	4
BIO SCI 375	Cell and Molecular Biology	3	BIO SCI 2213	Cell Biology	3
CIS 123 or CIS 105, 105L or CIS 106, 106L or CIS 103*	Data Structures or Programming Principles I and Lab or Programming Principles II and Lab or Scientific Computation for Simulation Analysis*	3	CS 1500 or CS 1972*	Computational Problem Solving (3) or Intro to MATLAB Programming (2)* <small>*Will be substituted for CS 1500.</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	30		Group 2 Major Requirements	29
	Group 1 Core Requirements	44		Group 1 Core Requirements	38
	Total Hours	74		Total Hours*	67

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

Biomedical Engineering-Biomaterials Group 2 Major Requirements

<u>Clark Atlanta University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
STA 101	Fundamentals of Speech	3	SP&MS 1185	Principles of Speech	3
ENG 350	Technical Writing	3	ENGLISH 3560	Technical Writing	3
HIS 211 or HIS 212 or PSC 219	History of the US Before 1865 or History of the United States Since 1865 or American Government and Politics	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
CHE 112, 112L	General Chemistry II and Lab	4	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</small>	3
CHE 231, 231L	Organic Chemistry I and Lab	4	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, 232L	Organic Chemistry II and Lab	4	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 111, 111L	General Biology I and Lab	4	BIO SCI 1113*, 1219*	General General Biology* and Lab* <small>*Applies to degree as Track Elective (Non-engineering).</small>	4
BIO 375	Cellular and Molecular Biology	3	BIO SCI 2213	Cell Biology	3
CIS 123 or CIS 105, 105L or CIS 106, 106L or CIS 103*	Data Structures or Programming Principles I and Lab or Programming Principles II and Lab or Scientific Computation for Simulation Analysis*	3	CS 1500 or CS 1972*	Computational Problem Solving (3) or Intro to MATLAB Programming (2)* <small>*Will be substituted for CS 1500.</small>	3
EGR 211	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 201	Electrical Circuit Analysis	4	EE 2100*	Circuits I <small>*A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for EE 2100. Applies to the degree as a Track Elective (Engineering).</small>	3
PHI 254	Bio-Medical Ethics	3	PHIL 3223	Bioethics	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	41		Group 2 Major Requirements	39
	Group 1 Core Requirements	44		Group 1 Core Requirements	38
	Total Hours	85		Total Hours*	77

*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>Clark Atlanta University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIS 211 or HIS 212 or PSC 219	History of the US Before 1865 or History of the United States Since 1865 or American Government and Politics	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
EGR 211	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
CHE 231, 231L or CHE 421	Organic Chemistry I and Lab (4) or Inorganic Chemistry and Lab (3)	3	CHEM 2210, 2219* or CHEM 2310	Organic Chemistry I (3) and Lab* (1) or Inorganic Chemistry I (3) <small>CHEM 2210 or 2310 will satisfy the advanced chemistry elective requirement. *CHEM 2219 is not a degree requirement, will transfer as general elective credit.</small>	3
CHE 112, 112L	General Chemistry II and Lab	4	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</small>	3
MAT 321	Mathematical Probability and Statistics I	3	STAT 3115	Engineering Statistics Intro to Probability and Statistics <small>or any statistics course 3000-level or higher. Satisfies statistics elective requirement.</small>	3
ENG 106 or STA 101 or HSS Elective	College Composition II or Fundamentals of Speech or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	3	ENGLISH 1160 or SPMS 1185 or HSS Elective	Writing and Research or Principles of Speech or 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
		25			24
	Group 1 Core Requirements	44		Group 1 Core Requirements	38
	Total Hours	69		Total Hours*	62

*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>Clark Atlanta University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
STA 101	Fundamentals of Speech	3	SP&MS 1185	Principles of Speech	3
ENG 350	Technical Writing	3	ENGLISH 3560	Technical Writing	3
HIS 211 or HIS 212 or PSC 219	History of the US Before 1865 or History of the United States Since 1865 or American Government and Politics	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
CHE 112, 112L	General Chemistry II and Lab	4	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</small>	3
CHE 231, 231L	Organic Chemistry I and Lab*	4	CHEM 2210, 2219*	Organic Chemistry I and Lab* <small>*The lab will apply to the degree as 1 of the 9 science elective credits (below).</small>	4
CHE 232 or CHE 211 or BIO 375 or BIO 233	Organic Chemistry II (4) or Analytical Chemistry I (4) or Cell and Molecular Biology (3) or Microbiology (4) <small>Select 8 hours from these options.</small>	8	CHEM 2220 or CHEM 2510 or BIO SCI 2213, 2219 or BIO SCI 3313, 3319	Organic Chemistry II (3) or Analytical Chemistry (4) or Cell Biology and Lab (4) or Microbiology and Lab (5) <small>Select 8 hours from these options. Will apply to the degree as 8 of the 9 required science elective credits (above).</small>	8
CIS 123 or CIS 105, 105L or CIS 106, 106L or CIS 103*	Data Structures or Programming Principles I and Lab or Programming Principles II and Lab or Scientific Computation for Simulation Analysis*	3	CS 1500 or CS 1972*	Computational Problem Solving (3) or Intro to MATLAB Programming (2)* <small>*Will be substituted for CS 1500.</small>	3
MAT 321	Mathematical Probability and Statistics I	3	STAT 3115	Engineering Statistics <small>Will be substituted for STAT 3113.</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
		34		Group 2 Major Requirements	33
	Group 1 Core Requirements	44		Group 1 Core Requirements	38
	Total Hours	78		Total Hours*	71

*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>Clark Atlanta University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 106 or STA 101 or ENG 350	College Composition II or Fundamentals of Speech or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3
HIS 211 or HIS 212 or PSC 219	History of the US Before 1865 or History of the United States Since 1865 or American Government and Politics	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
EGR 211	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 311	Engineering Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
MAT 321	Mathematical Probability and Statistics I	3	STAT 3115	Engineering Statistics Will be substituted for STAT 3113.	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	18		Group 2 Major Requirements	17
	Group 1 Core Requirements	44		Group 1 Core Requirements	38
	Total Hours	62		Total Hours*	55

*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>Clark Atlanta University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
STA 101	Fundamentals of Speech	3	SPMS 1185	Principles of Speech	3
ENG 106 or ENG 350	College Composition II or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIS 211 or HIS 212 or PSC 219	History of the US Before 1865 or History of the United States Since 1865 or American Government and Politics	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
CIS 123 or CIS 105, 105L or CIS 106, 106L or CIS 103*	Data Structures or Programming Principles I and Lab or Programming Principles II and Lab or Scientific Computation for Simulation Analysis*	3	CS 1500 or CS 1972*	Computational Problem Solving (3) or Intro to MATLAB Programming (2)* *Will be substituted for CS 1500.	3
EGR 211 or EGR 321 or PHY 211 or CHE 231, 231L or BIO 375 or BIO 312	Engineering Statics (3) or Engineering Dynamics (3) or Modern Physics I (3) or Organic Chemistry I and Lab(4) or Cell Biology (3) or Genetics I (3)	3	CIV ENG 2200 or MECH ENG 2350 or PHYSICS 2311 or CHEM 2210, 2219* or BIO SCI 2213 or BIO SCI 2223	Engineering Mechanics-Statics (3) or Engineering Mechanics-Dynamics (2) or Modern Physics I (3) Organic Chemistry I (3) and Lab* (1) or Cell Biology (3) or General Genetics (3) <small>Satisfies a required engineering/science elective. *CHEM 2219 is not a Missouri S&T degree requirement, will transfer as general elective credit.</small>	3
EGR 201	Electrical Circuit Analysis	4	EE 2100**	Circuits I **A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for EE 2100.	3
MAT 214	Linear Algebra	3	MATH 3108	Linear Algebra <small>Will satisfy a required math elective.</small>	3
MAT 321	Mathematical Probability and Statistics I	3	STAT 3115	Engineering Statistics <small>Will be substituted for STAT 3117.</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
Electives	Maximum Free Electives	3	Electives	Maximum Free Electives	3
	Group 2 Major Requirements	31		Group 2 Major Requirements	30
	Group 1 Core Requirements	44		Group 1 Core Requirements	38
	Total Hours	75		Total Hours*	68

*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>Clark Atlanta University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
STA 101	Fundamentals of Speech	3	SPMS 1185	Principles of Speech	3
ENG 106 or ENG 350	College Composition II or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIS 211 or HIS 212 or PSC 219	History of the US Before 1865 or History of the United States Since 1865 or American Government and Politics	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
CIS 123 or CIS 105, 105L or CIS 106, 106L or CIS 103*	Data Structures or Programming Principles I and Lab or Programming Principles II and Lab or Scientific Computation for Simulation Analysis*	3	CS 1500 or CS 1972*	Computational Problem Solving (3) or Intro to MATLAB Programming (2)* *Will be substituted for CS 1500.	3
EGR 211 and EGR 321 <small>BOTH of the courses above or ONE of the courses below.</small> OR PHY 211 or CHE 231, 231L or BIO 375 or BIO 312	Engineering Statics (3) and Engineering Dynamics (3) <small>Both courses above combined or any one of the following courses will satisfy a required engineering science elective.</small> OR Modern Physics I (3) Organic Chemistry I and Lab (4) or Cell Biology (3) or Genetics I (3)	3	CIV ENG 2200 and MECH ENG 2350 <small>BOTH of the courses above or ONE of the courses below.</small> OR PHYSICS 2311 or CHEM 2210, 2219* or BIO SCI 2213 or BIO SCI 2223	Engineering Mechanics-Statics (3) and Engineering Mechanics-Dynamics (2) <small>Both courses above combined or any one of the following courses will satisfy a required engineering science elective.</small> OR Modern Physics I (3) Organic Chemistry I (3) and Lab* (1) or Cell Biology (3) or General Genetics (3) <small>Satisfies a required engineering/science elective. *CHEM 2219 is not a Missouri S&T degree requirement, will transfer as general elective credit.</small>	3
EGR 201	Electrical Circuit Analysis	4	EE 2100**	Circuits I **A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for EE 2100.	3
MAT 214	Linear Algebra	3	MATH 3108	Linear Algebra	3
MAT 321	Mathematical Probability and Statistics I	3	STAT 3115	Engineering Statistics <small>Will be substituted for STAT 3117.</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
Electives	Maximum Free Electives	3	Electives	Maximum Free Electives	3
	Group 2 Major Requirements	31		Group 2 Major Requirements	30
	Group 1 Core Requirements	44		Group 1 Core Requirements	38
	Total Hours	75		Total Hours*	68

*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>Clark Atlanta University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
PSY 211	General Psychology	3	PSYCH 1101	General Psychology	3
HIS 211 or	History of the US Before 1865 or		HISTORY 1300 or	American History to 1877 or	
HIS 212 or	History of the United States Since 1865 or	3	HISTORY 1310 or	American History since 1877 or	3
PSC 219	American Government and Politics		POL SCI 1200	American Government	
STA 101	Fundamentals of Speech	3	SPMS 1185	Principles of Speech	3
ENG 106 or	College Composition II or		ENGLISH 1160 or	Writing and Research or	
ENG 350	Technical Writing	3	ENGLISH 3560	Technical Writing	3
CIS 103	Scientific Computation for Simulation Analysis	3	CS 1972, 1982	Intro to MATLAB Programming and Lab	3
EGR 201	Electrical Circuit Analysis	4	EE 2800	Electrical Circuits	3
EGR 211	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 311	Engineering Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
MAT 321	Mathematical Probability and Statistics I	3	STAT 3115	Engineering Statistics	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	34		Group 2 Major Requirements	29
	Group 1 Core Requirements	44		Group 1 Core Requirements	38
	Total Hours	78		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>Clark Atlanta University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 106 or	College Composition II or		ENGLISH 1160 or	Writing and Research or	
STA 101 or	Fundamentals of Speech or	3	SPMS 1185 or	Principles of Speech or	3
ENG 350	Technical Writing		ENGLISH 3560	Technical Writing	
HIS 211 or	History of the US Before 1865 or		HISTORY 1300 or	American History to 1877 or	
HIS 212	History of the United States Since 1865	3	HISTORY 1310	American History since 1877	3
CHE 112, 112L	General Chemistry II and Lab	4	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</small>	3
BIO 111	General Biology I and Lab	4	BIO SCI 1113, 1219*	General Biology (3) and Lab* (1) <small>*BIO SCI 1219 is not an S&T degree requirement, will transfer as general elective credit.</small>	3
EGR 211	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 311	Engineering Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
MAT 321	Mathematical Probability and Statistics I	3	STAT 3115	Engineering Statistics <small>Will be substituted for STAT 3113.</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	26		Group 2 Major Requirements	23
	Group 1 Core Requirements	44		Group 1 Core Requirements	38
	Total Hours	70		Total Hours*	61

*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>Clark Atlanta University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 350	Technical Writing	3	ENGLISH 3560	Technical Writing	3
HIS 211 or	History of the US Before 1865 or		HISTORY 1300 or	American History to 1877 or	
HIS 212 or	History of the United States Since 1865 or	3	HISTORY 1310 or	American History since 1877 or	3
PSC 219	American Government and Politics		POL SCI 1200	American Government	
CIS 123 or	Data Structures or		CS 1500 or	Computational Problem Solving (3) or	
CIS 105, 105L or	Programming Principles I and Lab or	3	CS 1972	Intro to MATLAB Programming (2)	3
CIS 106, 106L or	Programming Principles II and Lab or				
CIS 103	Scientific Computation for Simulation Analysis				
EGR 211	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 311	Engineering Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
MAT 321	Mathematical Probability and Statistics I	3	STAT 3115	Engineering Statistics	3
Humanities or	Any history, economics, political science, sociology,		Humanities or	Any history, economics, political science, sociology,	
Social Science	psychology, philosophy, fine art, literature, foreign language.	3	Social Science	psychology, philosophy, fine art, literature, foreign language.	3
Humanities or	Any history, economics, political science, sociology,		Humanities or	Any history, economics, political science, sociology,	
Social Science	psychology, philosophy, fine art, literature, foreign language.	3	Social Science	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	24		Group 2 Major Requirements	23
	Group 1 Core Requirements	44		Group 1 Core Requirements	38
	Total Hours	68		Total Hours*	61

*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>Clark Atlanta University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIS 211 or	History of the US Before 1865 or		HISTORY 1300 or	American History to 1877 or	
HIS 212 or	History of the United States Since 1865 or	3	HISTORY 1310 or	American History since 1877 or	3
PSC 219	American Government and Politics		POL SCI 1200	American Government	
ENG 106 or	College Composition II or		ENGLISH 1160 or	Writing and Research or	
STA 101 or	Fundamentals of Speech or	3	SPMS 1185 or	Principles of Speech or	3
ENG 350	Technical Writing		ENGLISH 3560	Technical Writing	
CIS 103	Scientific Computation for Simulation Analysis	3	CS 1972, 1982	Intro to MATLAB Programming and Lab	3
EGR 201	Electrical Circuit Analysis	4	EE 2800	Electrical Circuits	3
EGR 211	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 214 or	Linear Algebra or		MATH 3108 or	Linear Algebra I or	
MAT 321	Mathematical Probability and Statistics I	3	STAT 3115 or	Engineering Statistics	3
	Literature Elective	3		Will satisfy the Advanced Math/Comp Sci elective requirement.	
	Literature Elective	3		Literature Elective	3
Humanities or	Any history, economics, political science, sociology,		Humanities or	Any history, economics, political science, sociology,	
Social Science	psychology, philosophy, fine art, literature, foreign language.	3	Social Science	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	25		Group 2 Major Requirements	24
	Group 1 Core Requirements	44		Group 1 Core Requirements	38
	Total Hours	69		Total Hours*	62

*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

Clark Atlanta University	Semester	Missouri S&T
ENG 106 or STA 101 or ENG 350	College Composition II or Fundamentals of Speech or Technical Writing 3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560 3
HIS 211 or HIS 212 or PSC 219	History of the US Before 1865 or History of the United States Since 1865 or American Government and Politics 3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200 3
MAT 321	Mathematical Probability and Statistics I 3	CIV ENG 2200 Engineering Mechanics-Statics 3
CHE 112, 112L	General Chemistry II and Lab 4	STAT 3115 Engineering Statistics Will 3 <small>be substituted for the STAT 3113/3115 requirement.</small>
CHE 231 or CHE 421 or EGR 201 or PHY 211	Organic Chemistry I (4) or Inorganic Chemistry and Lab (3) or Electrical Circuit Analysis (4) or Modern Physics (3) 3-4	CHEM 1320, 1510* 3 <small>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</small>
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language. 3	Organic Chemistry I (4) or Inorganic Chemistry I (3) or Electrical Circuits (3) or Modern Physics I (3) 3 <small>Not specifically required for the degree but will satisfy Out-of-Department Technical Elective Requirement.</small>
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language. 3	Humanities or Social Science 3
Electives	Maximum Free Electives 5	Humanities or Social Science 3
	Group 2 Major Requirements 24	Electives 3
	Group 1 Core Requirements 44	Group 2 Major Requirements 27
Total Hours	68	Group 1 Core Requirements 38
		Total Hours* 65

*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

Clark Atlanta University	Semester	Missouri S&T
ENG 106 or ENG 350	College Composition II or Technical Writing 3	ENGLISH 1160 or ENGLISH 3560 3
HIS 211 or HIS 212 or PSC 219	History of the US Before 1865 or History of the United States Since 1865 or American Government and Politics 3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200 3
MAT 321	Mathematical Probability and Statistics I 3	STAT 3115 Engineering Statistics 3 <small>Will be substituted for the STAT 3113/3115 requirement.</small>
EGR 211	Engineering Statics 3	CIV ENG 2200 Engineering Mechanics-Statics 3
EGR 311	Engineering Dynamics 3	MECH ENG 2350 Engineering Mechanics-Dynamics 2
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language. 3	Humanities or Social Science 3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language. 3	Humanities or Social Science 3
	<i>No free electives applied to the degree.</i> 0	Maximum Free Electives 0
	Group 2 Major Requirements 21	Group 2 Major Requirements 20
	Group 1 Core Requirements 44	Group 1 Core Requirements 38
Total Hours	65	Total Hours* 58

*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>Clark Atlanta University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 106 or STA 101 or ENG 350	College Composition II or Fundamentals of Speech or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3
HIS 211 or HIS 212 or PSC 219	History of the US Before 1865 or History of the United States Since 1865 or American Government and Politics	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
CIS 103	Scientific Computation for Simulation Analysis	3	CS 1972, 1982	Intro to MATLAB Programming and Lab	3
MAT 214	Linear Algebra	3	MATH 3108	Linear Algebra	3
EGR 211	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 321	Mathematical Probability and Statistics I	3	STAT 3115	Engineering Statistics	3
EGR 201	Electrical Circuit Analysis	4	EE 2800	Electrical Circuits	3
PHY 211	Modern Physics	3	PHYSICS 2311	Modern Physics	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	37		Group 2 Major Requirements	36
	Group 1 Core Requirements	44		Group 1 Core Requirements	38
	Total Hours	81		Total Hours*	74

*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>Clark Atlanta University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 350 or ENG106	Technical Writing or College Composition II	3	ENGLISH 3560 or ENGLISH 1160	Technical Writing (preferred) or Writing and Research	3
HIS 211 or HIS 212 or PSC 219	History of the US Before 1865 or History of the United States Since 1865 or American Government and Politics	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
CIS 103	Scientific Computation for Simulation Analysis	3	CS 1972, 1982	Intro to MATLAB Programming and Lab	3
EGR 211	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 311	Engineering Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
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	21		Group 2 Major Requirements	20
	Group 1 Core Requirements	44		Group 1 Core Requirements	38
	Total Hours	65		Total Hours*	58

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