

## Westminster 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>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
MAT 124	Calculus I	5	MATH 1214	Calculus I <small>Grade of C or better is required.</small>	4
MAT 214	Calculus II	4	MATH 1215	Calculus II <small>Grade of C or better is required.</small>	4
MAT 224	Calculus III	4	MATH 2222	Calculus III <small>Grade of C or better is required.</small>	4
MAT 312	Differential Equations	3	MATH 3304	Elementary Differential Equations	3
PHY 201	Physics I	4	PHYSICS 1135	Engineering Physics I <small>Grade of C or better is required.</small>	4
PHY 212	Physics II	4	PHYSICS 2135	Engineering Physics II <small>Grade of C or better is required.</small>	4
CHM 114, 115	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab	5
ENG 103	Academic Writing	3	ENGLISH 1120	Exposition and Argumentation	3
ECON 212 or ECON 211	Principles of Microeconomics or Principles of Macroeconomics	3	ECON 1100 or ECON 1200	Principles of Microeconomics or Principles of Macroeconomics	3
Total Hours		34	Total Hours		34

## 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>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
HIS 106 or HIS 103 or HIS 104 or POL 211	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or American Government and Politics	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
SPE 111	Intro to Public Communication	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3
CSA 304	Structured Programming	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
PHY 328	Analog Circuits	3	EE 2800	Electrical Circuits	3
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 215 or MAT 313	Linear Algebra or Mathematical Probability and Statistics	3	MATH 3108 or STAT 3115	Linear Algebra or Engineering Statistics	3
	Literature Elective	3		Will satisfy the Advanced Math/Comp Sci elective requirement. Literature Elective	3
	Ethics Elective	3		Ethics Elective Engineering, business, bio, social or other ethics approved by advisor.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	27		Group 2 Major Requirements	27
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	61		Total Hours*	61

\*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>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
HIS 106 (or HIS 103 or HIS 104)	Western Civilization II (or U.S. History to 1890 or U.S. History since 1890) <small>*HIS 106 is preferred; 103 or 104 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
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 313	Mathematical Probability and Statistics	3	STAT 3115	Engineering Statistics* <small>*Will be substituted for STAT 3113.</small>	3
GEL 121	Intro to Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	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: SPE 111.	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	19		Group 2 Major Requirements	18
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	53		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>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
SPE 111	Intro to Public Communication	3	SP&MS 1185	Principles of Speech	3
HIS 106 or	Western Civilization II or		HISTORY 1200 or	Modern Western Civilization or	
HIS 103 or	U.S. History to 1890 or	3	HISTORY 1300 or	American History to 1877 or	3
HIS 104 or	U.S. History since 1890 or		HISTORY 1310 or	American History since 1877 or	
POL 211	American Government and Politics		POL SCI 1200	American Government	
CHM 124	General Chemistry II	3	CHEM 1320	General Chemistry II	3
CHM 314 , 315	Organic Chemistry I and Lab	4	CHEM 2210, 2219	Organic Chemistry I and Lab	4
CHM 324, 325 or	Organic Chemistry II and Lab (5) or		CHEM 2220, 2229 or	Organic Chemistry II and Lab or	
BIO 114, 115 or	Biological Processes and Lab (4) or	4	BIO SCI 1113, 1219 or	General Biology and Lab or	4
BIO 301	Genetics (4)		BIO SCI 2223	General Genetics	
				Applies to degree as Track Elective.	
BIO 325	Molecular Cell Biology	4	BIO SCI 2213	Cell Biology	3
CSA 304	Structured Programming	3	CS 1971,1981*	Intro to Programming Methodology and Lab* (C++)	3
				*Will be substituted for CS 1500.	
Humanities or	Any history, economics, political science, sociology,	3	Humanities or	Any history, economics, political science, sociology,	3
Social Science	psychology, philosophy, fine art, literature, foreign language.		Social Science	psychology, philosophy, fine art, literature, foreign language.	
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	27		Group 2 Major Requirements	26
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	61		Total Hours*	60

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

## Biomedical Engineering-Biomaterials Group 2 Major Requirements

<u>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
SPE 111	Intro to Public Communication	3	SP&MS 1185	Principles of Speech	3
HIS 106 or	Western Civilization II or		HISTORY 1200 or	Modern Western Civilization or	
HIS 103 or	U.S. History to 1890 or	3	HISTORY 1300 or	American History to 1877 or	3
HIS 104 or	U.S. History since 1890 or		HISTORY 1310 or	American History since 1877 or	
POL 211	American Government and Politics		POL SCI 1200	American Government	
CHM 124	General Chemistry II	3	CHEM 1320	General Chemistry II	3
CHM 314 , 315	Organic Chemistry I and Lab	4	CHEM 2210, 2219*	Organic Chemistry I and Lab*	4
				*CHEM 2219 Lab applies to the degree as a Track Elective (non-engineering).	
CHM 324, 325	Organic Chemistry II and Lab	4	CHEM 2220, 2229*	Organic Chemistry II and Lab*	4
				CHEM 2229 Lab applies to the degree as a Track Elective (non-engineering).	
BIO 114, 115	Biological Processes and Lab	5	BIO SCI 1113*, 1219*	General General Biology* and Lab*	4
				*Applies to degree as Track Elective (Non-engineering).	
BIO 325	Molecular Cell Biology	4	BIO SCI 2213	Cell Biology	3
CSA 304	Structured Programming	3	CS 1971,1981*	Intro to Programming Methodology and Lab* (C++)	3
				*Will be substituted for CS 1500.	
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHY 328	Analog Circuits	3	EE 2100*	Circuits I *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).	3
PHL 242	Biomedical Ethics	3	PHIL 3223	Bioethics	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	38		Group 2 Major Requirements	36
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	72		Total Hours*	70

\*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>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
HIS 106 or HIS 103 or HIS 104 or POL 211	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or American Government and Politics	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
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
CHM 314	Organic Chemistry I	3	CHEM 2210	Organic Chemistry I (3) <small>Will satisfy the advanced chemistry elective requirement.</small>	3
CHM 124	General Chemistry II	3	CHEM 1320	General Chemistry II	3
MAT 313	Mathematical Probability and Statistics	3	STAT 3115	Engineering Statistics <small>or any statistics course 3000-level or higher. Satisfies statistics elective requirement.</small>	3
PHY 223	Physics III	3	PHYS 2305	Intro to Modern Physics	3
SPE 111 or HSS Elective	Intro to Speech Communication or Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	SPMS 1185 or HSS Elective	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
	Group 2 Major Requirements	27		Group 2 Major Requirements	30
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	61		Total Hours*	64

\*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>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
SPE 101	Intro to Speech Communication	3	SP&MS 1185	Principles of Speech	3
HIS 106 or HIS 103 or HIS 104 or POL 211	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or American Government and Politics	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
CHM 124	General Chemistry II	3	CHEM 1320	General Chemistry II	3
CHM 314 , 315	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
CHM 324 or CHM 334,335 or BIO 325,206	Organic Chemistry II (3) or Analytical Chemistry I (3) and Lab (1) or Molecular Cell Biology (4) and Lab Instruction Techniques (1) <small>Select up to 8 hours from these options.</small>	8	CHEM 2220 or CHEM 2510 or BIO SCI 2213, 2219	Organic Chemistry II (4) or Analytical Chemistry (4) or Cell Biology and Lab (4) <small>Will satisfy science elective requirement. Select up to 9 hours from these options or CHEM 2219 Organic Chemistry Lab.</small>	8
CSA 304	Structured Programming	3	CS 1971,1981*	Intro to Programming Methodology and Lab* (C++) <small>*Will be substituted for CS 1500.</small>	3
MAT 313	Mathematical Probability and Statistics	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	33		Group 2 Major Requirements	33
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	67		Total Hours*	67

\*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>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
SPE 101	Intro to Speech Communication	3	SPMS 1185	Principles of Speech	3
HIS 106 or HIS 103 or HIS 104 or POL 211	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or American Government and Politics	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
GEL 121	Intro to Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 313	Mathematical Probability and Statistics	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	22		Group 2 Major Requirements	21
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	56		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>Westminster College</u>		<u>Semester</u>		<u>Missouri S&amp;T</u>	
SPE 101	Intro to Speech Communication	3	SPMS 1185	Principles of Speech	3
HIS 106 or HIS 103 or HIS 104 or POL 211	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or American Government and Politics	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
CSA 304	Structured Programming	3	CS 1500	Computational Problem Solving <small>*Will be substituted for CS 1500.</small>	3
EGR 230 or CHM 314 or PHY 223 or BIO 325 or BIO 301	Engineering Mechanics-Statics (3) or Organic Chemistry I (3) or Physics III (3) or Molecular Cell Biology (4) or Genetics (4)	3	CIV ENG 2200 or CHEM 2210 or PHYSICS 2305 BIO SCI 2213 or BIO SCI 2223	Engineering Mechanics-Statics (3) or Organic Chemistry I (3) or Intro to Modern Physics (3) or Cell Biology (3) or General Genetics (3) <small>Satisfies a required engineering/science elective.</small>	3
PHY 328	Analog Circuits	3	EE 2100**	Circuits I <small>**A passing grade on the Missouri S&amp;T EE Advancement Exam I is required to receive credit for EE 2100.</small>	3
MAT 215 or MAT 331	Linear Algebra or Mathematics Seminar	3	MATH 3108 or MATH 3109	Linear Algebra or Foundations of Mathematics <small>Will satisfy a required math elective.</small>	3
MAT 313	Mathematical Probability and Statistics	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	27		Group 2 Major Requirements	27
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	61		Total Hours*	61

\*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>Westminster College</u>		<u>Semester</u>		<u>Missouri S&amp;T</u>	
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
SPE 101	Intro to Speech Communication	3	SPMS 1185	Principles of Speech	3
HIS 106 or HIS 103 or HIS 104 or POL 211	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or American Government and Politics	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
CSA 304	Structured Programming	3	CS 1500	Computational Problem Solving <small>*Will be substituted for CS 1500.</small>	3
EGR 230 and Dynamics at S&T <small>BOTH of the courses above or ONE of the courses below.</small>	Engineering Mechanics-Statics (3) and Dynamics to be taken at Missouri S&T (3) <small>Both courses above combined or any one of the following courses will satisfy a required engineering science elective.</small>	3	CIV ENG 2200 and MECH ENG 2350 <small>BOTH of the courses above or ONE of the courses below.</small>	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>	3
OR	OR	3	OR	OR	3
PHY 223 or CHM 314 or BIO 325 or BIO 301	Physics III (3) or Organic Chemistry I (3) or Molecular Cell Biology (4) or Genetics (4)		PHYSICS 2305 or CHEM 2210 or BIO SCI 2213 or BIO SCI 2223	Intro to Modern Physics (3) or Organic Chemistry I (4) or Cell Biology (3) or General Genetics (3)	
PHY 328	Analog Circuits	3	EE 2100**	Circuits I <small>**A passing grade on the Missouri S&amp;T EE Advancement Exam I is required to receive credit for EE 2100.</small>	3
MTH 261	Linear Algebra	3	MATH 3108	Linear Algebra	3
MAT 313	Mathematical Probability and Statistics	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	30		Group 2 Major Requirements	30
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	64		Total Hours*	64

\*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>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
PSY 112	Psychology as a Natural Science	3	PSYCH 1101	General Psychology	3
HIS 106 or HIS 103 or HIS 104 or	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or	Modern Western Civilization or American History to 1877 or American History since 1877 or	3
POL 211	American Government and Politics		POL SCI 1200	American Government	
SPE 101	Intro to Speech Communication	3	SPMS 1185	Principles of Speech	3
CSA 304	Structured Programming	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
PHY 328	Analog Circuits	3	EE 2800	Electrical Circuits	3
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 313	Mathematical Probability and Statistics	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	30		Group 2 Major Requirements	27
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	64		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>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
SPE 101	Intro to Speech Communication	3	SPMS 1185	Principles of Speech	3
HIS 106 or HIS 103 or HIS 104	Western Civilization II or U.S. History to 1890 or U.S. History since 1890	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310	Modern Western Civilization or American History to 1877 or American History since 1877	3
GEL 121	Intro to Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
CHM 124	General Chemistry II	3	CHEM 1320	General Chemistry II	3
BIO 108	Intro to Biological Principles	4	BIO SCI 1113	General Biology	3
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 313	Mathematical Probability and Statistics	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>	0		Maximum Free Electives	0
	Group 2 Major Requirements	29		Group 2 Major Requirements	27
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	63		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>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
HIS 106 or HIS 103 or HIS 104 or	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or	Modern Western Civilization or American History to 1877 or American History since 1877 or	3
POL 211	American Government and Politics		POL SCI 1200	American Government	
CSA 304	Structured Programming	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
GEL 121	Intro to Geology	4	GEO ENG 1150 (GEOLOGY 1110)	Physical and Environmental Geology	3
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 313	Mathematical Probability and Statistics	3	STAT 3115	Engineering Statistics <small>Applies to the degree as a required statistics elective.</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
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	25		Group 2 Major Requirements	24
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	59		Total Hours*	58

\*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>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
HIS 106 or HIS 103 or HIS 104 or	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or	Modern Western Civilization or American History to 1877 or American History since 1877 or	3
POL 211	American Government and Politics		POL SCI 1200	American Government	
SPE 101	Intro to Speech Communication	3	SPMS 1185	Principles of Speech	3
CSA 304	Structured Programming	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
PHY 328	Analog Circuits	3	EE 2800	Electrical Circuits	3
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 215 or MAT 313	Linear Algebra or Mathematical Probability and Statistics	3	MATH 3108 or STAT 3115	Linear Algebra I or Engineering Statistics	3
	Literature Elective	3		<small>Will satisfy the Advanced Math/Statistics elective requirement.</small> 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	27		Group 2 Major Requirements	27
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	61		Total Hours*	61

\*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>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
SPE 101	Intro to Speech Communication	3	SPMS 1185	Principles of Speech	3
HIS 106 or	Western Civilization II or		HISTORY 1200 or	Modern Western Civilization or	
HIS 103 or	U.S. History to 1890 or		HISTORY 1300 or	American History to 1877 or	
HIS 104 or	U.S. History since 1890 or	3	HISTORY 1310 or	American History since 1877 or	3
POL 211	American Government and Politics		POL SCI 1200	American Government	
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 313	Mathematical Probability and Statistics	3	STAT 3115	Engineering Statistics	3
CHM 124	General Chemistry II	3	CHEM 1320	General Chemistry II	3
CHM 314 or	Organic Chemistry I or		CHEM 2210 or	Organic Chemistry I (3) or	
CHM 424 or	Physical Chemistry I or		CHEM 3410 or	Chemical Thermodynamics I (3) or	
PHY 328 or	Analog Circuits or		EE 2800 or	Electrical Circuits (3) or	
PHY 223	Physics III	3	PHYSICS 2305	Intro to Modern Physics (3)	3
				Not specifically required for the degree but will satisfy out-of-department technical elective requirement	
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	32		Group 2 Major Requirements	30
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	66		Total Hours*	64

\*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>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
HIS 106 or	Western Civilization II or		HISTORY 1200 or	Modern Western Civilization or	
HIS 103 or	U.S. History to 1890 or		HISTORY 1300 or	American History to 1877 or	
HIS 104 or	U.S. History since 1890 or	3	HISTORY 1310 or	American History since 1877 or	3
POL 211	American Government and Politics		POL SCI 1200	American Government	
EGR 230	Engineering Mechanics-Statics	3	STAT 3115	Engineering Statistics	3
MAT 313	Mathematical Probability and Statistics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
GEL 121	Intro to Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	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	22		Group 2 Major Requirements	21
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	56		Total Hours*	55

\*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>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
SPE 101	Intro to Speech Communication	3	SPMS 1185	Principles of Speech	3
HIS 106 or HIS 103 or HIS 104 or	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or	Modern Western Civilization or American History to 1877 or American History since 1877 or	3
POL 211	American Government and Politics		POL SCI 1200	American Government	
CSA 304	Structured Programming	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
MAT 215 or MAT 331	Linear Algebra or Mathematics Seminar	3	MATH 3108 or MATH 3109	Linear Algebra or Foundations of Mathematics	3
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 313	Mathematical Probability and Statistics	3	STAT 3115	Engineering Statistics	3
PHY 328	Analog Circuits	3	EE 2800	Electrical Circuits	3
PHY 223	Physics III	3	PHYSICS 2305	Intro to 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	39		Group 2 Major Requirements	39
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	73		Total Hours*	73

\*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>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
HIS 106 or HIS 103 or HIS 104 or	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or	Modern Western Civilization or American History to 1877 or American History since 1877 or	3
POL 211	American Government and Politics		POL SCI 1200	American Government	
GEL 121	Intro to Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	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	34		Group 1 Core Requirements	34
	Total Hours	53		Total Hours*	52

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