

## William Jewell College — Missouri S&T

### General Engineering

Transfer Guide Effective as of Fall 2025

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

Students are not required to complete all courses on this guide before transferring to Missouri S&T.

## 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.

| William Jewell College |                                                                                                                    | Semester | Missouri S&T            |                                                                                                                                                      |    |
|------------------------|--------------------------------------------------------------------------------------------------------------------|----------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| MAT 109 and MAT 200    | Calculus I and Calculus II<br>BOTH MAT 109 and MAT 200 must be taken to receive credit for S&T MATH 1214 and 1215. | 8        | MATH 1214 and MATH 1215 | Calculus I and Calculus II Grade of C or better is required.<br>BOTH MAT 109 and MAT 200 must be taken to receive credit for S&T MATH 1214 and 1215. | 8  |
| MAT 201 and MAT 302    | Calculus III and Calculus IV<br>BOTH MAT 201 and MAT 302 must be taken to receive credit for S&T MATH 2222.        | 8        | MATH 2222               | Calculus III Grade of C or better is required.<br>BOTH MAT 201 and MAT 302 must be taken to receive credit for S&T MATH 2222.                        | 4  |
| MAT 202                | Intro to Differential Equations                                                                                    | 4        | MATH 3304               | Elementary Differential Equations                                                                                                                    | 3  |
| PHY 213, 213L          | General Physics I and Lab                                                                                          | 5        | PHYSICS 1135            | Engineering Physics I Grade of C or better is required.                                                                                              | 4  |
| PHY 214, 214L          | General Physics II and Lab                                                                                         | 5        | PHYSICS 2135            | Engineering Physics II Grade of C or better is required.                                                                                             | 4  |
| CTI 102                | Written Communication                                                                                              | 4        | ENGLISH 1120            | Exposition and Argumentation                                                                                                                         | 3  |
| Total Hours            |                                                                                                                    | 34       | Total Hours             |                                                                                                                                                      | 26 |

## 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.

This transfer guide is published by Missouri University of Science and Technology and is in effect as of Fall 2025.  
 Further information or updates are available from Missouri S&T Transfer Admissions at [transfer@mst.edu](mailto:transfer@mst.edu), [transfer@mst.edu](mailto:transfer@mst.edu), or 800-522-0938.

## Aerospace Engineering Group 2 Major Requirements

| William Jewell College                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                       |    | Semester                                                                                                                                            | Missouri S&T                                                                                                                                                                                                                                                                                                                                                 |    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| COM 100                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Fundamentals of Speech Communication                                                                                                                                                                                                                                                                                                  | 3  | SPMS 1185                                                                                                                                           | Principles of Speech<br>Applies to degree as Gen Ed Communication requirement.                                                                                                                                                                                                                                                                               | 3  |
| CHE 121, 121L                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | General Chemistry I and Lab                                                                                                                                                                                                                                                                                                           | 5  | CHEM 1310*, 1319                                                                                                                                    | General Chemistry I and Lab<br>*CHEM 1310 will be substituted for CHEM 1305.                                                                                                                                                                                                                                                                                 | 5  |
| EGR 230                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Statics                                                                                                                                                                                                                                                                                                                               | 3  | CIV ENG 2200                                                                                                                                        | Engineering Mechanics-Statics                                                                                                                                                                                                                                                                                                                                | 3  |
| PHY 443                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Classical Mechanics                                                                                                                                                                                                                                                                                                                   | 4  | AERO ENG 2360                                                                                                                                       | Dynamics                                                                                                                                                                                                                                                                                                                                                     | 3  |
| EGR 233                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Mechanics of Solids                                                                                                                                                                                                                                                                                                                   | 3  | CIV ENG 2210                                                                                                                                        | Mechanics of Materials                                                                                                                                                                                                                                                                                                                                       | 3  |
| MAT 281                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Linear Algebra                                                                                                                                                                                                                                                                                                                        | 4  | MATH 3108                                                                                                                                           | Linear Algebra I<br>Satisfies the Advanced Math/Comp Sci elective requirement.                                                                                                                                                                                                                                                                               | 3  |
| Ethics                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Ethics Elective                                                                                                                                                                                                                                                                                                                       | 3  | Ethics                                                                                                                                              | Ethics Elective<br>Engineering, business, bio, social or other ethics approved by advisor.                                                                                                                                                                                                                                                                   | 3  |
| <b>Humanities, Arts, and Social Sciences General Education Requirements</b><br>From the options listed in each group below, select 15 hours to include<br>6 hours Humanities and Fine Arts from at least two specific disciplines and<br>6 hours Behavioral and Social Sciences from at least two specific disciplines.<br><b>*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.</b> |                                                                                                                                                                                                                                                                                                                                       |    |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                              |    |
| <b>Humanities and Fine Arts</b><br>Select 6 hours from at least two specific disciplines.                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                       |    |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                              |    |
| ENG 340 or<br>ENG 345 or<br>ENG 350 or<br>ENG 360 or<br>HIS 121* or<br>HIS 122* or                                                                                                                                                                                                                                                                                                                                                                                              | Studies in English Literature I or<br>Studies in English Literature II or<br>Studies in U.S. Literature I or<br>Great Works of World Literature or<br><b>Foundations of U.S. History*</b> or<br><b>The Modern United States*</b><br>*Satisfies the State of Missouri government requirement.                                          | 6  | ENGLISH 1211 or<br>ENGLISH 1212 or<br>ENGLISH 1222 or<br>ENGLISH 1231 or<br><b>HISTORY 1300*</b> or<br><b>HISTORY 1310*</b>                         | British Literature I: The Beginnings to 1800 or<br>British Literature II: 1800 to Present or<br>American Literature: 1865 to Present or<br>World Literature I: Beginnings to the Renaissance or<br><b>American History to 1877*</b> or<br><b>American History Since 1877*</b><br>*Satisfies the State of Missouri government requirement.                    | 6  |
| <b>Behavioral and Social Sciences</b><br>Select 6 hours from at least two specific disciplines.                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                       |    |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                              |    |
| GEO 304 or<br>PHI 201 or<br>PHI 331 or<br><b>POL 150*</b> or<br>PSY 101 or<br>ECO 101 or<br>ECO 202 or<br>Foreign Language                                                                                                                                                                                                                                                                                                                                                      | Economic Geography or<br>Intro to Philosophy or<br>Symbolic Logic or<br><b>Intro to American Government*</b> or<br>Intro to Psychological Science or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br>*Satisfies the State of Missouri government requirement. | 6  | HISTORY 2110 or<br>PHILOS 1105 or<br>PHILOS 1115 or<br><b>POL SCI 1200*</b> or<br>PSYCH 1101 or<br>ECON 1100 or<br>ECON 1200 or<br>Foreign Language | World Regional Geography or<br>Self and World: Intro to Philosophy or<br>Logic and Reasoning: An Introduction or<br><b>American Government*</b> or<br>General Psychology or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br>*Satisfies the State of Missouri government requirement. | 6  |
| <b>Humanities, Arts, and Social Sciences</b><br>Select 3 hours.                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                       |    |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                              |    |
| HASS Elective                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.                                                                                                                              | 3  | HASS Elective                                                                                                                                       | Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.                                                                                                                                                     | 3  |
| No free electives applied to the degree.                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                       | 0  | Maximum Free Electives                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                              | 0  |
| Group 2 Major Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                       | 40 | Group 2 Major Requirements                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                              | 38 |
| Group 1 Core Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                       | 34 | Group 1 Core Requirements                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                              | 26 |
| Total Hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                       | 74 | Total Hours*                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                              | 64 |
| *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

| William Jewell College                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                              | Semester | Missouri S&T                                                                                                              |                                                                                                                                                                                                                                                                                                                                    |    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| COM 100                                                                                                                                                                                                                                                                  | Fundamentals of Speech Communication                                                                                                                                                                                                                                                                         | 3        | SPMS 1185                                                                                                                 | Principles of Speech<br><i>Applies to degree as Gen Ed Communication requirement.</i>                                                                                                                                                                                                                                              | 3  |
| CHE 121, 121L                                                                                                                                                                                                                                                            | General Chemistry I and Lab                                                                                                                                                                                                                                                                                  | 5        | CHEM 1310*, 1319                                                                                                          | General Chemistry I and Lab<br><i>*CHEM 1310 will be substituted for CHEM 1305.</i>                                                                                                                                                                                                                                                | 5  |
| EGR 230                                                                                                                                                                                                                                                                  | Statics                                                                                                                                                                                                                                                                                                      | 3        | CIV ENG 2200                                                                                                              | Engineering Mechanics-Statics                                                                                                                                                                                                                                                                                                      | 3  |
| PHY 443 or<br>EGR 231                                                                                                                                                                                                                                                    | Classical Mechanics (4) or<br>Dynamics (3)                                                                                                                                                                                                                                                                   | 3        | MECH ENG 2350                                                                                                             | Engineering Mechanics-Dynamics                                                                                                                                                                                                                                                                                                     | 2  |
| EGR 233                                                                                                                                                                                                                                                                  | Mechanics of Solids                                                                                                                                                                                                                                                                                          | 3        | CIV ENG 2210                                                                                                              | Mechanics of Materials                                                                                                                                                                                                                                                                                                             | 3  |
| MAT 301                                                                                                                                                                                                                                                                  | Intro to Probability                                                                                                                                                                                                                                                                                         | 4        | STAT 3117*                                                                                                                | Intro to Probability and Statistics*<br><i>*Will be substituted for STAT 3113.</i>                                                                                                                                                                                                                                                 | 3  |
| Humanities, Arts, and Social Sciences General Education Requirements<br>From the options listed in each group below, select 9 hours to include<br>6 hours Humanities and Fine Arts from at least two specific disciplines and<br>3 hours Behavioral and Social Sciences. |                                                                                                                                                                                                                                                                                                              |          |                                                                                                                           |                                                                                                                                                                                                                                                                                                                                    |    |
| *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.                                                                                                                            |                                                                                                                                                                                                                                                                                                              |          |                                                                                                                           |                                                                                                                                                                                                                                                                                                                                    |    |
| Humanities and Fine Arts<br>Select 6 hours from at least two specific disciplines.                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                              |          |                                                                                                                           |                                                                                                                                                                                                                                                                                                                                    |    |
| ENG 340 or<br>ENG 345 or<br>ENG 350 or<br>ENG 360 or<br>HIS 121* or<br>HIS 122* or                                                                                                                                                                                       | Studies in English Literature I or<br>Studies in English Literature II or<br>Studies in U.S. Literature I or<br>Great Works of World Literature or<br>Foundations of U.S. History* or<br>The Modern United States*<br><i>*Satisfies the State of Missouri government requirement.</i>                        | 6        | ENGLISH 1211 or<br>ENGLISH 1212 or<br>ENGLISH 1222 or<br>ENGLISH 1231 or<br>HISTORY 1300* or<br>HISTORY 1310*             | British Literature I: The Beginnings to 1800 or<br>British Literature II: 1800 to Present or<br>American Literature: 1865 to Present or<br>World Literature I: Beginnings to the Renaissance or<br>American History to 1877* or<br>American History Since 1877*<br><i>*Satisfies the State of Missouri government requirement.</i> | 6  |
| Behavioral and Social Sciences<br>Select 3 hours.                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                              |          |                                                                                                                           |                                                                                                                                                                                                                                                                                                                                    |    |
| PHI 201 or<br>PHI 331 or<br>POL 150* or<br>PSY 101 or<br>ECO 101 or<br>ECO 202 or<br>Foreign Language                                                                                                                                                                    | Intro to Philosophy or<br>Symbolic Logic or<br>Intro to American Government* or<br>Intro to Psychological Science or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br><i>*Satisfies the State of Missouri government requirement.</i> | 3        | PHILOS 1105 or<br>PHILOS 1115 or<br>POL SCI 1200* or<br>PSYCH 1101 or<br>ECON 1100 or<br>ECON 1200 or<br>Foreign Language | Self and World: Intro to Philosophy or<br>Logic and Reasoning: An Introduction or<br>American Government* or<br>General Psychology or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br><i>*Satisfies the State of Missouri government requirement.</i>      | 3  |
| No free electives applied to the degree.                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                              | 0        | Maximum Free Electives                                                                                                    |                                                                                                                                                                                                                                                                                                                                    | 0  |
| Group 2 Major Requirements                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                              | 30       | Group 2 Major Requirements                                                                                                |                                                                                                                                                                                                                                                                                                                                    | 28 |
| Group 1 Core Requirements                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                              | 34       | Group 1 Core Requirements                                                                                                 |                                                                                                                                                                                                                                                                                                                                    | 26 |
| Total Hours                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                              | 64       | Total Hours*                                                                                                              |                                                                                                                                                                                                                                                                                                                                    | 54 |
| *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

| William Jewell College                                                                                                                                                                           |                                                                                                                                                                                                                                                                                 |    | Semester                                                                                                      | Missouri S&T                                                                                                                                                                                                                                                                                                                                                                                                                                       |    |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--|
| COM 100                                                                                                                                                                                          | Fundamentals of Speech Communication                                                                                                                                                                                                                                            | 3  | SPMS 1185                                                                                                     | Principles of Speech                                                                                                                                                                                                                                                                                                                                                                                                                               | 3  |  |
| CHE 121, 121L                                                                                                                                                                                    | General Chemistry I and Lab                                                                                                                                                                                                                                                     | 5  | CHEM 1310, 1319                                                                                               | General Chemistry I and Lab                                                                                                                                                                                                                                                                                                                                                                                                                        | 5  |  |
| CHE 122, 122L                                                                                                                                                                                    | General Chemistry II and Lab                                                                                                                                                                                                                                                    | 5  | CHEM 1320, 1510*                                                                                              | General Chemistry II (3) and Qualitative Analysis (2)                                                                                                                                                                                                                                                                                                                                                                                              | 3  |  |
| CHE 301, 301L                                                                                                                                                                                    | Organic Chemistry I and Lab                                                                                                                                                                                                                                                     | 5  | CHEM 2210, 2219                                                                                               | *CHEM 1510 is not a degree requirement, transfers as general elective credit.<br>Organic Chemistry I and Lab                                                                                                                                                                                                                                                                                                                                       | 4  |  |
| CHE 301, 301L or BIO 234                                                                                                                                                                         | Organic Chemistry I and Lab (5) or Genetics (4)                                                                                                                                                                                                                                 | 4  | CHEM 2220, 2229 or BIO SCI 1113, 1219 or BIO SCI 1213*, 1219 or BIO SCI 2223                                  | Organic Chemistry II and Lab or General Biology and Lab or Principles of Biology* or General Genetics                                                                                                                                                                                                                                                                                                                                              | 4  |  |
| BIO 233, 233L                                                                                                                                                                                    | Cell and Molecular Biology and Lab                                                                                                                                                                                                                                              | 5  | BIO SCI 2213, 2219                                                                                            | Applies to degree as Track Elective.<br>Cell Biology and Lab                                                                                                                                                                                                                                                                                                                                                                                       | 4  |  |
| BIO 243, 243L and BIO 250, 250L                                                                                                                                                                  | Human Anatomy and Lab (5) and Human Physiology and Lab (5)<br>*The combination of WJC BIO 243, 243L, 250, 250L is equivalent to the combination of Missouri S&T BIO SCI 3333, 3339, 3343, 3349. All four WJC courses must be taken to receive full transfer credit.             | 10 | BIO SCI 3333, 3339* and BIO SCI 3343*, 3349*                                                                  | Human Anatomy and Physiology I and Lab* or Human Anatomy and Physiology II* and Lab*<br>*The combination of WJC BIO 243, 243L, 250, 250L is equivalent to the combination of Missouri S&T BIO SCI 3333, 3339, 3343, 3349. All four WJC courses must be taken to receive full transfer credit. BIO SCI 3339, 3343, 3349 are not Missouri S&T degree requirements. Will apply to degree totals as general elective credits per catalog requirements. | 3  |  |
| DTS 190                                                                                                                                                                                          | Intro to Computer Science                                                                                                                                                                                                                                                       | 4  | CS 1500                                                                                                       | Computational Problem Solving                                                                                                                                                                                                                                                                                                                                                                                                                      | 3  |  |
| Humanities, Arts, and Social Sciences General Education Requirements                                                                                                                             |                                                                                                                                                                                                                                                                                 |    |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |  |
| From the options listed in each group below, select 9 hours to include<br>6 hours Humanities and Fine Arts from at least two specific disciplines and<br>3 hours Behavioral and Social Sciences. |                                                                                                                                                                                                                                                                                 |    |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |  |
| *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.                                                    |                                                                                                                                                                                                                                                                                 |    |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |  |
| Humanities and Fine Arts                                                                                                                                                                         |                                                                                                                                                                                                                                                                                 |    |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |  |
| Select 6 hours from at least two specific disciplines.                                                                                                                                           |                                                                                                                                                                                                                                                                                 |    |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |  |
| ENG 340 or<br>ENG 345 or<br>ENG 350 or<br>ENG 360 or<br>HIS 121* or<br>HIS 122* or                                                                                                               | Studies in English Literature I or<br>Studies in English Literature II or<br>Studies in U.S. Literature I or<br>Great Works of World Literature or<br>Foundations of U.S. History* or<br>The Modern United States*<br>*Satisfies the State of Missouri government requirement.  | 6  | ENGLISH 1211 or<br>ENGLISH 1212 or<br>ENGLISH 1222 or<br>ENGLISH 1231 or<br>HISTORY 1300* or<br>HISTORY 1310* | British Literature I: The Beginnings to 1800 or<br>British Literature II: 1800 to Present or<br>American Literature: 1865 to Present or<br>World Literature I: Beginnings to the Renaissance or<br>American History to 1877* or<br>American History Since 1877*<br>*Satisfies the State of Missouri government requirement.                                                                                                                        | 6  |  |
| Behavioral and Social Sciences                                                                                                                                                                   |                                                                                                                                                                                                                                                                                 |    |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |  |
| Select 3 hours.                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                 |    |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |  |
| GEO 304 or<br>POL 150* or<br>PSY 101 or<br>ECO 101 or<br>ECO 202 or<br>Foreign Language                                                                                                          | Economic Geography or<br>Intro to American Government* or<br>Intro to Psychological Science or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br>*Satisfies the State of Missouri government requirement. | 3  | HISTORY 2110 or<br>POL SCI 1200* or<br>PSYCH 1101 or<br>ECON 1100 or<br>ECON 1200 or<br>Foreign Language      | World Regional Geography or<br>American Government* or<br>General Psychology or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br>*Satisfies the State of Missouri government requirement.                                                                                                                                                                                   | 3  |  |
| No free electives applied to the degree.                                                                                                                                                         |                                                                                                                                                                                                                                                                                 | 0  | Maximum Free Electives                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0  |  |
| Group 2 Major Requirements                                                                                                                                                                       |                                                                                                                                                                                                                                                                                 | 50 | Group 2 Major Requirements                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 38 |  |
| Group 1 Core Requirements                                                                                                                                                                        |                                                                                                                                                                                                                                                                                 | 34 | Group 1 Core Requirements                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 26 |  |
| Total Hours                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                 | 84 | Total Hours*                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 64 |  |
| *S&T advisor permission is required to transfer more than 69 credit hours toward the degree.                                                                                                     |                                                                                                                                                                                                                                                                                 |    |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |  |

## Biomedical Engineering-Biomaterials Group 2 Major Requirements

| William Jewell College                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                   |    | Semester                                                                                                      | Missouri S&T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |              |    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----|
| COM 100                                                                                                                                                                                          | Fundamentals of Speech Communication                                                                                                                                                                                                                                                              | 3  | SPMS 1185                                                                                                     | Principles of Speech                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3            |    |
| CHE 121, 121L                                                                                                                                                                                    | General Chemistry I and Lab                                                                                                                                                                                                                                                                       | 5  | CHEM 1310, 1319                                                                                               | General Chemistry I and Lab                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 5            |    |
| CHE 122, 122L                                                                                                                                                                                    | General Chemistry II and Lab                                                                                                                                                                                                                                                                      | 5  | CHEM 1320, 1510*                                                                                              | General Chemistry II (3) and Qualitative Analysis (2)                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3            |    |
| CHE 301, 301L                                                                                                                                                                                    | Organic Chemistry I and Lab                                                                                                                                                                                                                                                                       | 5  | CHEM 2210, 2219*                                                                                              | Organic Chemistry I and Lab*                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 4            |    |
| CHE 302, 302L                                                                                                                                                                                    | Organic Chemistry II and Lab                                                                                                                                                                                                                                                                      | 5  | CHEM 2220, 2229*                                                                                              | Organic Chemistry II and Lab*                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4            |    |
| BIO 233, 233L                                                                                                                                                                                    | Cell and Molecular Biology and Lab                                                                                                                                                                                                                                                                | 5  | BIO SCI 2213, 2219                                                                                            | Cell Biology and Lab                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4            |    |
| BIO 243, 243L and<br>BIO 250, 250L                                                                                                                                                               | Human Anatomy and Lab (5) and<br>Human Physiology and Lab (5)<br><small>*The combination of WJC BIO 243, 243L, 250, 250L is equivalent to the combination of<br/>Missouri S&amp;T BIO SCI 3333, 3339, 3343, 3349. All four WJC courses must be taken to<br/>receive full transfer credit.</small> | 10 | BIO SCI 3333, 3339* and<br>BIO SCI 3343*, 3349*                                                               | Human Anatomy and Physiology I and Lab* or<br>Human Anatomy and Physiology II* and Lab*<br><small>*The combination of WJC BIO 243, 243L, 250, 250L is equivalent to the combination of<br/>Missouri S&amp;T BIO SCI 3333, 3339, 3343, 3349. All four WJC courses must be taken to<br/>receive full transfer credit. BIO SCI 3339, 3343, 3349 are not Missouri S&amp;T degree<br/>requirements. Will apply to degree totals as general elective credits per catalog<br/>requirements.</small> | 3            |    |
| DTS 190                                                                                                                                                                                          | Intro to Computer Science                                                                                                                                                                                                                                                                         | 4  | CS 1500                                                                                                       | Computational Problem Solving                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3            |    |
| EGR 230                                                                                                                                                                                          | Statics                                                                                                                                                                                                                                                                                           | 3  | CIV ENG 2200                                                                                                  | Engineering Mechanics-Statics                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3            |    |
| Humanities, Arts, and Social Sciences General Education Requirements                                                                                                                             |                                                                                                                                                                                                                                                                                                   |    |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              |    |
| From the options listed in each group below, select 9 hours to include<br>6 hours Humanities and Fine Arts from at least two specific disciplines and<br>3 hours Behavioral and Social Sciences. |                                                                                                                                                                                                                                                                                                   |    |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              |    |
| *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.                                                    |                                                                                                                                                                                                                                                                                                   |    |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              |    |
| Humanities and Fine Arts                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                   |    |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              |    |
| Select 6 hours from at least two specific disciplines.                                                                                                                                           |                                                                                                                                                                                                                                                                                                   |    |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              |    |
| ENG 340 or<br>ENG 345 or<br>ENG 350 or<br>ENG 360 or<br>HIS 121* or<br>HIS 122* or                                                                                                               | Studies in English Literature I or<br>Studies in English Literature II or<br>Studies in U.S. Literature I or<br>Great Works of World Literature or<br>Foundations of U.S. History* or<br>The Modern United States*<br><small>*Satisfies the State of Missouri government requirement.</small>     | 6  | ENGLISH 1211 or<br>ENGLISH 1212 or<br>ENGLISH 1222 or<br>ENGLISH 1231 or<br>HISTORY 1300* or<br>HISTORY 1310* | British Literature I: The Beginnings to 1800 or<br>British Literature II: 1800 to Present or<br>American Literature: 1865 to Present or<br>World Literature I: Beginnings to the Renaissance or<br>American History to 1877* or<br>American History Since 1877*<br><small>*Satisfies the State of Missouri government requirement.</small>                                                                                                                                                   | 6            |    |
| Behavioral and Social Sciences                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                   |    |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              |    |
| Select 3 hours.                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                   |    |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              |    |
| GEO 304 or<br>POL 150* or<br>PSY 101 or<br>ECO 101 or<br>ECO 202 or<br>Foreign Language                                                                                                          | Economic Geography or<br>Intro to American Government* or<br>Intro to Psychological Science or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br><small>*Satisfies the State of Missouri government requirement.</small>    | 3  | HISTORY 2110 or<br>POL SCI 1200* or<br>PSYCH 1101 or<br>ECON 1100 or<br>ECON 1200 or<br>Foreign Language      | World Regional Geography or<br>American Government* or<br>General Psychology or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br><small>*Satisfies the State of Missouri government requirement.</small>                                                                                                                                                                                                              | 3            |    |
| No free electives applied to the degree.                                                                                                                                                         |                                                                                                                                                                                                                                                                                                   | 0  | Maximum Free Electives                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0            |    |
| Group 2 Major Requirements                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                   | 54 | Group 2 Major Requirements                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 41           |    |
| Group 1 Core Requirements                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                   | 34 | Group 1 Core Requirements                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 26           |    |
| Total Hours                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                   | 88 |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Total Hours* | 67 |
| <small>*S&amp;T advisor permission is required to transfer more than 69 credits toward the S&amp;T<br/>Biomedical Engineering degree.</small>                                                    |                                                                                                                                                                                                                                                                                                   |    |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              |    |

## Ceramic Engineering Group 2 Major Requirements

| William Jewell College                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                       |    | Semester                                                                                                                                            | Missouri S&T                                                                                                                                                                                                                                                                                                                                                 |              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| COM 100                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Fundamentals of Speech Communication                                                                                                                                                                                                                                                                                                  | 3  | SPMS 1185                                                                                                                                           | Principles of Speech<br>Applies to degree as Gen Ed Communication requirement.                                                                                                                                                                                                                                                                               | 3            |
| EGR 230                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Statics                                                                                                                                                                                                                                                                                                                               | 3  | CIV ENG 2200                                                                                                                                        | Engineering Mechanics-Statics                                                                                                                                                                                                                                                                                                                                | 3            |
| EGR 233                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Mechanics of Solids                                                                                                                                                                                                                                                                                                                   | 3  | CIV ENG 2210                                                                                                                                        | Mechanics of Materials                                                                                                                                                                                                                                                                                                                                       | 3            |
| CHE 121, 121L                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | General Chemistry I and Lab                                                                                                                                                                                                                                                                                                           | 5  | CHEM 1310, 1319                                                                                                                                     | General Chemistry I and Lab                                                                                                                                                                                                                                                                                                                                  | 5            |
| CHE 122, 122L                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | General Chemistry II and Lab                                                                                                                                                                                                                                                                                                          | 5  | CHEM 1320, 1510*                                                                                                                                    | General Chemistry II (3) and Qualitative Analysis (2)<br>*CHEM 1510 is not a degree requirement, transfers as general elective credit.                                                                                                                                                                                                                       | 3            |
| CHE 301                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Organic Chemistry I                                                                                                                                                                                                                                                                                                                   | 4  | CHEM 2210, 2219*                                                                                                                                    | Organic Chemistry I (3) and Lab* (1)<br>Satisfies the advanced chemistry elective requirement.<br>*The lab is not a degree requirement, transfers as general elective credit.                                                                                                                                                                                | 3            |
| MAT 305                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Intro to Probability                                                                                                                                                                                                                                                                                                                  | 4  | STAT 3117                                                                                                                                           | Intro to Probability and Statistics<br>or any statistics course 3000-level or higher. Satisfies statistics elective requirement.                                                                                                                                                                                                                             | 3            |
| PHY 316                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Modern Physics                                                                                                                                                                                                                                                                                                                        | 4  | PHYS 2305                                                                                                                                           | Intro to Modern Physics                                                                                                                                                                                                                                                                                                                                      | 3            |
| <b>Humanities, Arts, and Social Sciences General Education Requirements</b><br>From the options listed in each group below, select 15 hours to include<br>6 hours Humanities and Fine Arts from at least two specific disciplines and<br>6 hours Behavioral and Social Sciences from at least two specific disciplines.<br><b>*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.</b> |                                                                                                                                                                                                                                                                                                                                       |    |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                              |              |
| <b>Humanities and Fine Arts</b><br>Select 6 hours from at least two specific disciplines.                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                       |    |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                              |              |
| ENG 340 or<br>ENG 345 or<br>ENG 350 or<br>ENG 360 or<br>HIS 121* or<br>HIS 122* or                                                                                                                                                                                                                                                                                                                                                                                              | Studies in English Literature I or<br>Studies in English Literature II or<br>Studies in U.S. Literature I or<br>Great Works of World Literature or<br><b>Foundations of U.S. History*</b> or<br><b>The Modern United States*</b><br>*Satisfies the State of Missouri government requirement.                                          | 6  | ENGLISH 1211 or<br>ENGLISH 1212 or<br>ENGLISH 1222 or<br>ENGLISH 1231 or<br><b>HISTORY 1300*</b> or<br><b>HISTORY 1310*</b>                         | British Literature I: The Beginnings to 1800 or<br>British Literature II: 1800 to Present or<br>American Literature: 1865 to Present or<br>World Literature I: Beginnings to the Renaissance or<br><b>American History to 1877*</b> or<br><b>American History Since 1877*</b><br>*Satisfies the State of Missouri government requirement.                    | 6            |
| <b>Behavioral and Social Sciences</b><br>Select 6 hours from at least two specific disciplines.                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                       |    |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                              |              |
| GEO 304 or<br>PHI 201 or<br>PHI 331 or<br><b>POL 150*</b> or<br>PSY 101 or<br>ECO 101 or<br>ECO 202 or<br>Foreign Language                                                                                                                                                                                                                                                                                                                                                      | Economic Geography or<br>Intro to Philosophy or<br>Symbolic Logic or<br><b>Intro to American Government*</b> or<br>Intro to Psychological Science or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br>*Satisfies the State of Missouri government requirement. | 6  | HISTORY 2110 or<br>PHILOS 1105 or<br>PHILOS 1115 or<br><b>POL SCI 1200*</b> or<br>PSYCH 1101 or<br>ECON 1100 or<br>ECON 1200 or<br>Foreign Language | World Regional Geography or<br>Self and World: Intro to Philosophy or<br>Logic and Reasoning: An Introduction or<br><b>American Government*</b> or<br>General Psychology or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br>*Satisfies the State of Missouri government requirement. | 6            |
| <b>Humanities, Arts, and Social Sciences</b><br>Select 3 hours.                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                       |    |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                              |              |
| HASS Elective                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.                                                                                                                              | 3  | HASS Elective                                                                                                                                       | Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.                                                                                                                                                     | 3            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                       | 0  |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                              | 0            |
| No free electives applied to the degree.                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                       | 0  | Maximum Free Electives                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                              | 0            |
| Group 2 Major Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                       | 46 | Group 2 Major Requirements                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                              | 41           |
| Group 1 Core Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                       | 34 | Group 1 Core Requirements                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                              | 26           |
| Total Hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                       | 80 |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                              | Total Hours* |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                       |    |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                              | 67           |
| *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

| William Jewell College                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                | Semester | Missouri S&T                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                      |                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| COM 100                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Fundamentals of Speech Communication                                                                                                                                                                                                                                                                                           | 3        | SPMS 1185                                                                                                                                    | Principles of Speech<br>Applies to degree as Gen Ed Communication requirement.                                                                                                                                                                                                                                                                       | 3               |
| CHE 121, 121L                                                                                                                                                                                                                                                                                                                                                                                                                                                     | General Chemistry I and Lab                                                                                                                                                                                                                                                                                                    | 5        | CHEM 1310, 1319                                                                                                                              | General Chemistry I and Lab                                                                                                                                                                                                                                                                                                                          | 5               |
| CHE 122, 122L                                                                                                                                                                                                                                                                                                                                                                                                                                                     | General Chemistry II and Lab                                                                                                                                                                                                                                                                                                   | 5        | CHEM 1320, 1510*                                                                                                                             | General Chemistry II (3) and Qualitative Analysis* (2)<br>*CHEM 1510 is not a degree requirement, transfers as general elective credit.                                                                                                                                                                                                              | 3               |
| CHE 301, 301L                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Organic Chemistry I and Lab                                                                                                                                                                                                                                                                                                    | 5        | CHEM 2210, 2219*                                                                                                                             | Organic Chemistry I and Lab*<br>*CHEM 2210 is a degree requirement. CHEM 2219 applies to the degree as 1 of 9 required science elective credits. See note below .                                                                                                                                                                                    | 4               |
| CHE 302 or<br>CHE 406 or<br>BIO 233, 233L or<br>BIO 321, 321L                                                                                                                                                                                                                                                                                                                                                                                                     | Organic Chemistry II (4) or<br>Instrumental Analysis (4) or<br>Cell and Molecular Biology and Lab (5) or<br>Microbiology and Lab (5)<br>Select up to 8 hours.                                                                                                                                                                  | 8        | CHEM 2220 or<br>CHEM 2510 or<br>BIO SCI 2213, 2219 or<br>BIO SCI 3313, 3319                                                                  | Organic Chemistry II (3) or<br>Analytical Chemistry (4) or<br>Cell Biology and Lab (4) or<br>Microbiology and Lab (5)<br>Applies to the degree as required science elective credits. Select up to 9 hours from these options or CHEM 2219 Organic Chemistry Lab.                                                                                     | 8               |
| DTS 190                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Intro to Computer Science                                                                                                                                                                                                                                                                                                      | 4        | CS 1500                                                                                                                                      | Computational Problem Solving                                                                                                                                                                                                                                                                                                                        | 3               |
| MAT 301                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Intro to Probability                                                                                                                                                                                                                                                                                                           | 4        | STAT 3117*                                                                                                                                   | Intro to Probability and Statistics*<br>*Will be substituted for STAT 3113.                                                                                                                                                                                                                                                                          | 3               |
| Humanities, Arts, and Social Sciences General Education Requirements<br>From the options listed in each group below, select 12 hours to include<br>6 hours Humanities and Fine Arts from at least two specific disciplines and<br>6 hours Behavioral and Social Sciences from at least two specific disciplines.<br>*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement. |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |                 |
| Humanities and Fine Arts<br>Select 6 hours from at least two specific disciplines.                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |                 |
| ENG 340 or<br>ENG 345 or<br>ENG 350 or<br>ENG 360 or<br>HIS 121* or<br>HIS 122* or                                                                                                                                                                                                                                                                                                                                                                                | Studies in English Literature I or<br>Studies in English Literature II or<br>Studies in U.S. Literature I or<br>Great Works of World Literature or<br>Foundations of U.S. History* or<br>The Modern United States*<br>*Satisfies the State of Missouri government requirement.                                                 | 6        | ENGLISH 1211 or<br>ENGLISH 1212 or<br>ENGLISH 1222 or<br>ENGLISH 1231 or<br>HISTORY 1300* or<br>HISTORY 1310*                                | British Literature I: The Beginnings to 1800 or<br>British Literature II: 1800 to Present or<br>American Literature: 1865 to Present or<br>World Literature I: Beginnings to the Renaissance or<br>American History to 1877* or<br>American History Since 1877*<br>*Satisfies the State of Missouri government requirement.                          | 6               |
| Behavioral and Social Sciences<br>Select 6 hours from at least two specific disciplines.                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |                 |
| GEO 304 or<br>PHI 201 or<br>PHI 331 or<br>POL 150* or<br>PSY 101 or<br>ECO 101 or<br>ECO 202 or<br>Foreign Language                                                                                                                                                                                                                                                                                                                                               | Economic Geography or<br>Intro to Philosophy or<br>Symbolic Logic or<br>Intro to American Government* or<br>Intro to Psychological Science or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br>*Satisfies the State of Missouri government requirement. | 6        | HISTORY 2110 or<br>PHILOS 1105 or<br>PHILOS 1115 or<br>POL SCI 1200* or<br>PSYCH 1101 or<br>ECON 1100 or<br>ECON 1200 or<br>Foreign Language | World Regional Geography or<br>Self and World: Intro to Philosophy or<br>Logic and Reasoning: An Introduction or<br>American Government*or<br>General Psychology or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br>*Satisfies the State of Missouri government requirement. | 6               |
| No free electives applied to the degree.                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                | 0        | Maximum Free Electives                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                      | 0               |
| Group 2 Major Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                | 46       | Group 2 Major Requirements                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                      | 41              |
| Group 1 Core Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                | 34       | Group 1 Core Requirements                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                      | 26              |
| Total Hours                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                | 80       |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      | 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

| William Jewell College                                                                                                                        |                                                                                                                                                                                                                                                                                                                                | Semester | Missouri S&T                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                      |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| COM 100                                                                                                                                       | Fundamentals of Speech Communication                                                                                                                                                                                                                                                                                           | 3        | SPMS 1185                                                                                                                                    | Principles of Speech<br><small>Applies to degree as Gen Ed Communication requirement.</small>                                                                                                                                                                                                                                                        | 3  |
| CHE 121, 121L                                                                                                                                 | General Chemistry I and Lab                                                                                                                                                                                                                                                                                                    | 5        | CHEM 1310, 1319                                                                                                                              | General Chemistry I and Lab                                                                                                                                                                                                                                                                                                                          | 5  |
| EGR 230                                                                                                                                       | Statics                                                                                                                                                                                                                                                                                                                        | 3        | CIV ENG 2200                                                                                                                                 | Engineering Mechanics-Statics                                                                                                                                                                                                                                                                                                                        | 3  |
| PHY 443 or<br>EGR 231                                                                                                                         | Classical Mechanics (4) or<br>Dynamics (3)                                                                                                                                                                                                                                                                                     | 3        | MECH ENG 2350                                                                                                                                | Engineering Mechanics-Dynamics                                                                                                                                                                                                                                                                                                                       | 2  |
| EGR 233                                                                                                                                       | Mechanics of Solids                                                                                                                                                                                                                                                                                                            | 3        | CIV ENG 2210                                                                                                                                 | Mechanics of Materials                                                                                                                                                                                                                                                                                                                               | 3  |
| MAT 301                                                                                                                                       | Intro to Probability                                                                                                                                                                                                                                                                                                           | 4        | STAT 3117*                                                                                                                                   | Intro to Probability and Statistics*                                                                                                                                                                                                                                                                                                                 | 3  |
| *Will be substituted for STAT 3113.                                                                                                           |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| Humanities, Arts, and Social Sciences General Education Requirements                                                                          |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| From the options listed in each group below, select 15 hours to include                                                                       |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| 6 hours Humanities and Fine Arts from at least two specific disciplines and                                                                   |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| 6 hours Behavioral and Social Sciences from at least two specific disciplines.                                                                |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement. |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| Humanities and Fine Arts                                                                                                                      |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| Select 6 hours from at least two specific disciplines.                                                                                        |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| ENG 340 or<br>ENG 345 or<br>ENG 350 or<br>ENG 360 or<br>HIS 121* or<br>HIS 122* or                                                            | Studies in English Literature I or<br>Studies in English Literature II or<br>Studies in U.S. Literature I or<br>Great Works of World Literature or<br>Foundations of U.S. History* or<br>The Modern United States*                                                                                                             | 6        | ENGLISH 1211 or<br>ENGLISH 1212 or<br>ENGLISH 1222 or<br>ENGLISH 1231 or<br>HISTORY 1300* or<br>HISTORY 1310*                                | British Literature I: The Beginnings to 1800 or<br>British Literature II: 1800 to Present or<br>American Literature: 1865 to Present or<br>World Literature I: Beginnings to the Renaissance or<br>American History to 1877* or<br>American History Since 1877*                                                                                      | 6  |
| *Satisfies the State of Missouri government requirement.                                                                                      |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| Behavioral and Social Sciences                                                                                                                |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| Select 6 hours from at least two specific disciplines.                                                                                        |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| GEO 304 or<br>PHI 201 or<br>PHI 331 or<br>POL 150* or<br>PSY 101 or<br>ECO 101 or<br>ECO 202 or<br>Foreign Language                           | Economic Geography or<br>Intro to Philosophy or<br>Symbolic Logic or<br>Intro to American Government* or<br>Intro to Psychological Science or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br>*Satisfies the State of Missouri government requirement. | 6        | HISTORY 2110 or<br>PHILOS 1105 or<br>PHILOS 1115 or<br>POL SCI 1200* or<br>PSYCH 1101 or<br>ECON 1100 or<br>ECON 1200 or<br>Foreign Language | World Regional Geography or<br>Self and World: Intro to Philosophy or<br>Logic and Reasoning: An Introduction or<br>American Government*or<br>General Psychology or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br>*Satisfies the State of Missouri government requirement. | 6  |
| Humanities, Arts, and Social Sciences                                                                                                         |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| Select 3 hours.                                                                                                                               |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| HASS Elective                                                                                                                                 | Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.                                                                                                                       | 3        | HASS Elective                                                                                                                                | Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.                                                                                                                                             | 3  |
| No free electives applied to the degree.                                                                                                      |                                                                                                                                                                                                                                                                                                                                | 0        | Maximum Free Electives                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                      | 0  |
| Group 2 Major Requirements                                                                                                                    |                                                                                                                                                                                                                                                                                                                                | 36       | Group 2 Major Requirements                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                      | 34 |
| Group 1 Core Requirements                                                                                                                     |                                                                                                                                                                                                                                                                                                                                | 34       | Group 1 Core Requirements                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                      | 26 |
| Total Hours                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                | 70       | Total Hours*                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                      | 60 |
| *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

| William Jewell College                                                                                                                        |                                                                                                                                                                                                                                                                                                                                |    | Semester                                                                                                                                     | Missouri S&T                                                                                                                                                                                                                                                                                                                                         |    |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--|
| COM 100                                                                                                                                       | Fundamentals of Speech Communication                                                                                                                                                                                                                                                                                           | 3  | SPMS 1185                                                                                                                                    | Principles of Speech                                                                                                                                                                                                                                                                                                                                 | 3  |  |
| CHE 121, 121L                                                                                                                                 | General Chemistry I and Lab                                                                                                                                                                                                                                                                                                    | 5  | CHEM 1310, 1319                                                                                                                              | General Chemistry I and Lab                                                                                                                                                                                                                                                                                                                          | 5  |  |
| DTS 190                                                                                                                                       | Intro to Computer Science                                                                                                                                                                                                                                                                                                      | 4  | CS 1500                                                                                                                                      | Computational Problem Solving                                                                                                                                                                                                                                                                                                                        | 3  |  |
| EGR 230 or<br>PHY 443 or<br>EGR 231 or<br>CHE 301 or<br>BIO 233 or<br>PHY 316                                                                 | Statics (3) or<br>Classical Mechanics (4) or<br>Dynamics (3) or<br>Organic Chemistry I (4) or<br>Cell and Molecular Biology (4) or<br>Modern Physics (4)                                                                                                                                                                       | 3  | CIV ENG 2200 or<br>MECH ENG 2350 or<br>CHEM 2210 or<br>BIO SCI 2213 or<br>PHYSICS 2305                                                       | Engineering Mechanics-Statics (3) or<br>Engineering Mechanics-Dynamics (2) or<br>Organic Chemistry I (4) or<br>Cell Biology (3) or<br>Modern Physics (3)<br>Satisfies a required engineering/science elective.                                                                                                                                       | 3  |  |
| MAT 281                                                                                                                                       | Linear Algebra                                                                                                                                                                                                                                                                                                                 | 4  | MATH 3108                                                                                                                                    | Linear Algebra                                                                                                                                                                                                                                                                                                                                       | 3  |  |
| MAT 305                                                                                                                                       | Intro to Probability                                                                                                                                                                                                                                                                                                           | 4  | STAT 3117                                                                                                                                    | Intro to Probability and Statistics                                                                                                                                                                                                                                                                                                                  | 3  |  |
| Humanities, Arts, and Social Sciences General Education Requirements                                                                          |                                                                                                                                                                                                                                                                                                                                |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |  |
| From the options listed in each group below, select 12 hours to include                                                                       |                                                                                                                                                                                                                                                                                                                                |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |  |
| 6 hours Humanities and Fine Arts from at least two specific disciplines and                                                                   |                                                                                                                                                                                                                                                                                                                                |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |  |
| 6 hours Behavioral and Social Sciences from at least two specific disciplines.                                                                |                                                                                                                                                                                                                                                                                                                                |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |  |
| *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement. |                                                                                                                                                                                                                                                                                                                                |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |  |
| Humanities and Fine Arts                                                                                                                      |                                                                                                                                                                                                                                                                                                                                |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |  |
| Select 6 hours from at least two specific disciplines.                                                                                        |                                                                                                                                                                                                                                                                                                                                |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |  |
| ENG 340 or<br>ENG 345 or<br>ENG 350 or<br>ENG 360 or<br>HIS 121* or<br>HIS 122* or                                                            | Studies in English Literature I or<br>Studies in English Literature II or<br>Studies in U.S. Literature I or<br>Great Works of World Literature or<br>Foundations of U.S. History* or<br>The Modern United States*                                                                                                             | 6  | ENGLISH 1211 or<br>ENGLISH 1212 or<br>ENGLISH 1222 or<br>ENGLISH 1231 or<br>HISTORY 1300* or<br>HISTORY 1310*                                | British Literature I: The Beginnings to 1800 or<br>British Literature II: 1800 to Present or<br>American Literature: 1865 to Present or<br>World Literature I: Beginnings to the Renaissance or<br>American History to 1877* or<br>American History Since 1877*                                                                                      | 6  |  |
| *Satisfies the State of Missouri government requirement.                                                                                      |                                                                                                                                                                                                                                                                                                                                |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |  |
| Behavioral and Social Sciences                                                                                                                |                                                                                                                                                                                                                                                                                                                                |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |  |
| Select 6 hours from at least two specific disciplines.                                                                                        |                                                                                                                                                                                                                                                                                                                                |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |  |
| GEO 304 or<br>PHI 201 or<br>PHI 331 or<br>POL 150* or<br>PSY 101 or<br>ECO 101 or<br>ECO 202 or<br>Foreign Language                           | Economic Geography or<br>Intro to Philosophy or<br>Symbolic Logic or<br>Intro to American Government* or<br>Intro to Psychological Science or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br>*Satisfies the State of Missouri government requirement. | 6  | HISTORY 2110 or<br>PHILOS 1105 or<br>PHILOS 1115 or<br>POL SCI 1200* or<br>PSYCH 1101 or<br>ECON 1100 or<br>ECON 1200 or<br>Foreign Language | World Regional Geography or<br>Self and World: Intro to Philosophy or<br>Logic and Reasoning: An Introduction or<br>American Government*or<br>General Psychology or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br>*Satisfies the State of Missouri government requirement. | 6  |  |
| Electives                                                                                                                                     | Maximum Free Electives                                                                                                                                                                                                                                                                                                         | 3  | Electives                                                                                                                                    | Maximum Free Electives                                                                                                                                                                                                                                                                                                                               | 3  |  |
|                                                                                                                                               | Group 2 Major Requirements                                                                                                                                                                                                                                                                                                     | 38 |                                                                                                                                              | Group 2 Major Requirements                                                                                                                                                                                                                                                                                                                           | 35 |  |
|                                                                                                                                               | Group 1 Core Requirements                                                                                                                                                                                                                                                                                                      | 34 |                                                                                                                                              | Group 1 Core Requirements                                                                                                                                                                                                                                                                                                                            | 26 |  |
|                                                                                                                                               | Total Hours                                                                                                                                                                                                                                                                                                                    | 72 |                                                                                                                                              | 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

| William Jewell College                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                    |    | Semester                                                                                                                                     | Missouri S&T                                                                                                                                                                                                                                                                             |    |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--|
| COM 100                                                                                                                                                                                                                                  | Fundamentals of Speech Communication                                                                                                                                                                                                                               | 3  | SPMS 1185                                                                                                                                    | Principles of Speech                                                                                                                                                                                                                                                                     | 3  |  |
| CHE 121, 121L                                                                                                                                                                                                                            | General Chemistry I and Lab                                                                                                                                                                                                                                        | 5  | CHEM 1310, 1319                                                                                                                              | General Chemistry I and Lab                                                                                                                                                                                                                                                              | 5  |  |
| DTS 190                                                                                                                                                                                                                                  | Intro to Computer Science                                                                                                                                                                                                                                          | 4  | CS 1500                                                                                                                                      | Computational Problem Solving                                                                                                                                                                                                                                                            | 3  |  |
| EGR 230 and<br>PHY 443 or EGR 231                                                                                                                                                                                                        | Statics (3) and<br>Classical Mechanics (4) or Dynamics (3)                                                                                                                                                                                                         |    | CIV ENG 2200 and<br>MECH ENG 2350                                                                                                            | Engineering Mechanics-Statics (3) and<br>Engineering Mechanics-Dynamics (2)                                                                                                                                                                                                              |    |  |
| BOTH of the courses above or ONE of<br>the courses below.                                                                                                                                                                                | Both courses above combined or any one of the following courses will satisfy a required<br>engineering science elective.                                                                                                                                           | 4  | BOTH of the courses above or ONE of<br>the courses below.                                                                                    | Both courses above combined or any one of the following courses will satisfy a required<br>engineering science elective.                                                                                                                                                                 | 3  |  |
| OR                                                                                                                                                                                                                                       | OR                                                                                                                                                                                                                                                                 |    | OR                                                                                                                                           | OR                                                                                                                                                                                                                                                                                       |    |  |
| PHY 316 or                                                                                                                                                                                                                               | Modern Physics (4) or                                                                                                                                                                                                                                              |    | PHYSICS 2305 or                                                                                                                              | Intro to Modern Physics (3) or                                                                                                                                                                                                                                                           |    |  |
| CHE 301 or                                                                                                                                                                                                                               | Organic Chemistry I (4) or                                                                                                                                                                                                                                         |    | CHEM 2210 or                                                                                                                                 | Organic Chemistry I (3) or                                                                                                                                                                                                                                                               |    |  |
| BIO 233                                                                                                                                                                                                                                  | Cell and Molecular Biology (4)                                                                                                                                                                                                                                     |    | BIO SCI 2213                                                                                                                                 | Cell Biology (3) or                                                                                                                                                                                                                                                                      |    |  |
| MAT 281                                                                                                                                                                                                                                  | Linear Algebra                                                                                                                                                                                                                                                     | 4  | MATH 3108                                                                                                                                    | Linear Algebra I                                                                                                                                                                                                                                                                         | 3  |  |
| MAT 305                                                                                                                                                                                                                                  | Intro to Probability                                                                                                                                                                                                                                               | 4  | STAT 3117                                                                                                                                    | Intro to Probability and Statistics                                                                                                                                                                                                                                                      | 3  |  |
| Humanities, Arts, and Social Sciences General Education Requirements                                                                                                                                                                     |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |    |  |
| From the options listed in each group below, select 12 hours to include<br>6 hours Humanities and Fine Arts from at least two specific disciplines and<br>6 hours Behavioral and Social Sciences from at least two specific disciplines. |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |    |  |
| *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.                                                                                            |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |    |  |
| Humanities and Fine Arts                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |    |  |
| Select 6 hours from at least two specific disciplines.                                                                                                                                                                                   |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |    |  |
| ENG 340 or<br>ENG 345 or<br>ENG 350 or<br>ENG 360 or<br>HIS 121* or<br>HIS 122* or                                                                                                                                                       | Studies in English Literature I or<br>Studies in English Literature II or<br>Studies in U.S. Literature I or<br>Great Works of World Literature or<br>Foundations of U.S. History* or<br>The Modern United States*                                                 | 6  | ENGLISH 1211 or<br>ENGLISH 1212 or<br>ENGLISH 1222 or<br>ENGLISH 1231 or<br>HISTORY 1300* or<br>HISTORY 1310*                                | British Literature I: The Beginnings to 1800 or<br>British Literature II: 1800 to Present or<br>American Literature: 1865 to Present or<br>World Literature I: Beginnings to the Renaissance or<br>American History to 1877* or<br>American History Since 1877*                          | 6  |  |
| *Satisfies the State of Missouri government requirement.                                                                                                                                                                                 |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |    |  |
| Behavioral and Social Sciences                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |    |  |
| Select 6 hours from at least two specific disciplines.                                                                                                                                                                                   |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |    |  |
| GEO 304 or<br>PHI 201 or<br>PHI 331 or<br>POL 150* or<br>PSY 101 or<br>ECO 101 or<br>ECO 202 or<br>Foreign Language                                                                                                                      | Economic Geography or<br>Intro to Philosophy or<br>Symbolic Logic or<br>Intro to American Government* or<br>Intro to Psychological Science or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language | 6  | HISTORY 2110 or<br>PHILOS 1105 or<br>PHILOS 1115 or<br>POL SCI 1200* or<br>PSYCH 1101 or<br>ECON 1100 or<br>ECON 1200 or<br>Foreign Language | World Regional Geography or<br>Self and World: Intro to Philosophy or<br>Logic and Reasoning: An Introduction or<br>American Government*or<br>General Psychology or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language | 6  |  |
| *Satisfies the State of Missouri government requirement.                                                                                                                                                                                 |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |    |  |
| Electives                                                                                                                                                                                                                                | Maximum Free Electives                                                                                                                                                                                                                                             | 6  | Electives                                                                                                                                    | Maximum Free Electives                                                                                                                                                                                                                                                                   | 6  |  |
|                                                                                                                                                                                                                                          | Group 2 Major Requirements                                                                                                                                                                                                                                         | 42 |                                                                                                                                              | Group 2 Major Requirements                                                                                                                                                                                                                                                               | 38 |  |
|                                                                                                                                                                                                                                          | Group 1 Core Requirements                                                                                                                                                                                                                                          | 34 |                                                                                                                                              | Group 1 Core Requirements                                                                                                                                                                                                                                                                | 26 |  |
|                                                                                                                                                                                                                                          | Total Hours                                                                                                                                                                                                                                                        | 76 |                                                                                                                                              | Total Hours*                                                                                                                                                                                                                                                                             | 64 |  |
| *S&T advisor permission is required to transfer more than 68 credits toward the S&T<br>Electrical Engineering degree.                                                                                                                    |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |    |  |

\*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

| William Jewell College                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                 |    | Semester                                                                                                                          | Missouri S&T                                                                                                                                                                                                                                                                                                                                             |              |    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----|
| COM 100                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Fundamentals of Speech Communication                                                                                                                                                                                                                                                                            | 3  | SPMS 1185                                                                                                                         | Principles of Speech<br>Applies to degree as Gen Ed Communication requirement.                                                                                                                                                                                                                                                                           | 3            |    |
| CHE 121, 121L                                                                                                                                                                                                                                                                                                                                                                                                                                                            | General Chemistry I and Lab                                                                                                                                                                                                                                                                                     | 5  | CHEM 1310, 1319                                                                                                                   | General Chemistry I and Lab                                                                                                                                                                                                                                                                                                                              | 5            |    |
| EGR 230                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Statics                                                                                                                                                                                                                                                                                                         | 3  | CIV ENG 2200                                                                                                                      | Engineering Mechanics-Statics                                                                                                                                                                                                                                                                                                                            | 3            |    |
| PHY 443 or<br>EGR 231                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Classical Mechanics (4) or<br>Dynamics (3)                                                                                                                                                                                                                                                                      | 3  | MECH ENG 2350                                                                                                                     | Engineering Mechanics-Dynamics                                                                                                                                                                                                                                                                                                                           | 2            |    |
| EGR 233                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Mechanics of Solids                                                                                                                                                                                                                                                                                             | 3  | CIV ENG 2210                                                                                                                      | Mechanics of Materials                                                                                                                                                                                                                                                                                                                                   | 3            |    |
| MAT 305                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Intro to Probability                                                                                                                                                                                                                                                                                            | 4  | STAT 3117                                                                                                                         | Intro to Probability and Statistics                                                                                                                                                                                                                                                                                                                      | 3            |    |
| Humanities, Arts, and Social Sciences General Education Requirements<br>From the options listed in each group below, select 12 hours to include<br>6 hours Humanities and Fine Arts from at least two specific disciplines and<br>6 hours Behavioral and Social Sciences from at least two specific disciplines.<br><b>*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.</b> |                                                                                                                                                                                                                                                                                                                 |    |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                          |              |    |
| Humanities and Fine Arts<br>Select 6 hours from at least two specific disciplines.                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                 |    |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                          |              |    |
| ENG 340 or<br>ENG 345 or<br>ENG 350 or<br>ENG 360 or<br>HIS 121* or<br>HIS 122* or                                                                                                                                                                                                                                                                                                                                                                                       | Studies in English Literature I or<br>Studies in English Literature II or<br>Studies in U.S. Literature I or<br>Great Works of World Literature or<br><b>Foundations of U.S. History*</b> or<br><b>The Modern United States*</b><br><small>*Satisfies the State of Missouri government requirement.</small>     | 6  | ENGLISH 1211 or<br>ENGLISH 1212 or<br>ENGLISH 1222 or<br>ENGLISH 1231 or<br><b>HISTORY 1300*</b> or<br><b>HISTORY 1310*</b>       | British Literature I: The Beginnings to 1800 or<br>British Literature II: 1800 to Present or<br>American Literature: 1865 to Present or<br>World Literature I: Beginnings to the Renaissance or<br><b>American History to 1877*</b> or<br><b>American History Since 1877*</b><br><small>*Satisfies the State of Missouri government requirement.</small> | 6            |    |
| Behavioral and Social Sciences<br>Select 6 hours from at least two specific disciplines to include PSYCH 1101.                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                 |    |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                          |              |    |
| PSY 101                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Intro to Psychological Science                                                                                                                                                                                                                                                                                  | 4  | PSYCH 1101                                                                                                                        | General Psychology Required                                                                                                                                                                                                                                                                                                                              | 3            |    |
| GEO 304 or<br>PHI 201 or<br>PHI 331 or<br>POL 150* or<br>ECO 101 or<br>ECO 202 or<br>Foreign Language                                                                                                                                                                                                                                                                                                                                                                    | Economic Geography or<br>Intro to Philosophy or<br>Symbolic Logic or<br><b>Intro to American Government*</b> or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br><small>*Satisfies the State of Missouri government requirement.</small> | 3  | ISTORY 2110 or<br>PHILOS 1105 or<br>PHILOS 1115 or<br><b>POL SCI 1200*</b> or<br>ECON 1100 or<br>ECON 1200 or<br>Foreign Language | World Regional Geography or<br>Self and World: Intro to Philosophy or<br>Logic and Reasoning: An Introduction or<br><b>American Government*</b> or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br><small>*Satisfies the State of Missouri government requirement.</small>       | 3            |    |
| No free electives applied to the degree.                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                 | 0  | Electives                                                                                                                         | Maximum Free Electives                                                                                                                                                                                                                                                                                                                                   | 0            |    |
| Group 2 Major Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                 | 34 | Group 2 Major Requirements                                                                                                        |                                                                                                                                                                                                                                                                                                                                                          | 31           |    |
| Group 1 Core Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                 | 34 | Group 1 Core Requirements                                                                                                         |                                                                                                                                                                                                                                                                                                                                                          | 26           |    |
| Total Hours                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                 | 68 |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                          | Total Hours* | 61 |
| <small>*S&amp;T advisor permission is required to transfer more than 61 credits toward the S&amp;T Engineering Management degree.</small>                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                 |    |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                          |              |    |

## Environmental Engineering Group 2 Major Requirements

| William Jewell College                                                                                                                                                                           |                                                                                                                                                                                                                                           |    | Semester                                                                                                                  | Missouri S&T                                                                                                                                                                                                                                                    |    |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--|
| COM 100                                                                                                                                                                                          | Fundamentals of Speech Communication                                                                                                                                                                                                      | 3  | SPMS 1185                                                                                                                 | Principles of Speech                                                                                                                                                                                                                                            | 3  |  |
| CHE 121, 121L                                                                                                                                                                                    | General Chemistry I and Lab                                                                                                                                                                                                               | 5  | CHEM 1310, 1319                                                                                                           | General Chemistry I and Lab                                                                                                                                                                                                                                     | 5  |  |
| CHE 122                                                                                                                                                                                          | General Chemistry II                                                                                                                                                                                                                      | 4  | CHEM 1320, 1510*                                                                                                          | General Chemistry II (3) and Qualitative Analysis (2)                                                                                                                                                                                                           | 3  |  |
| EGR 230                                                                                                                                                                                          | Statics                                                                                                                                                                                                                                   | 3  | CIV ENG 2200                                                                                                              | Engineering Mechanics-Statics                                                                                                                                                                                                                                   | 3  |  |
| PHY 443 or<br>EGR 231                                                                                                                                                                            | Classical Mechanics (4) or<br>Dynamics (3)                                                                                                                                                                                                | 3  | MECH ENG 2350                                                                                                             | Engineering Mechanics-Dynamics                                                                                                                                                                                                                                  | 2  |  |
| EGR 233                                                                                                                                                                                          | Mechanics of Solids                                                                                                                                                                                                                       | 3  | CIV ENG 2210                                                                                                              | Mechanics of Materials                                                                                                                                                                                                                                          | 3  |  |
| MAT 301                                                                                                                                                                                          | Intro to Probability                                                                                                                                                                                                                      | 4  | STAT 3117                                                                                                                 | Intro to Probability and Statistics                                                                                                                                                                                                                             | 3  |  |
| Will be substituted for STAT 3113.                                                                                                                                                               |                                                                                                                                                                                                                                           |    |                                                                                                                           |                                                                                                                                                                                                                                                                 |    |  |
| Humanities, Arts, and Social Sciences General Education Requirements                                                                                                                             |                                                                                                                                                                                                                                           |    |                                                                                                                           |                                                                                                                                                                                                                                                                 |    |  |
| From the options listed in each group below, select 9 hours to include<br>6 hours Humanities and Fine Arts from at least two specific disciplines and<br>3 hours Behavioral and Social Sciences. |                                                                                                                                                                                                                                           |    |                                                                                                                           |                                                                                                                                                                                                                                                                 |    |  |
| *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.                                                    |                                                                                                                                                                                                                                           |    |                                                                                                                           |                                                                                                                                                                                                                                                                 |    |  |
| Humanities and Fine Arts                                                                                                                                                                         |                                                                                                                                                                                                                                           |    |                                                                                                                           |                                                                                                                                                                                                                                                                 |    |  |
| Select 6 hours from at least two specific disciplines.                                                                                                                                           |                                                                                                                                                                                                                                           |    |                                                                                                                           |                                                                                                                                                                                                                                                                 |    |  |
| ENG 340 or<br>ENG 345 or<br>ENG 350 or<br>ENG 360 or<br>HIS 121* or<br>HIS 122* or                                                                                                               | Studies in English Literature I or<br>Studies in English Literature II or<br>Studies in U.S. Literature I or<br>Great Works of World Literature or<br>Foundations of U.S. History* or<br>The Modern United States*                        | 6  | ENGLISH 1211 or<br>ENGLISH 1212 or<br>ENGLISH 1222 or<br>ENGLISH 1231 or<br>HISTORY 1300* or<br>HISTORY 1310*             | British Literature I: The Beginnings to 1800 or<br>British Literature II: 1800 to Present or<br>American Literature: 1865 to Present or<br>World Literature I: Beginnings to the Renaissance or<br>American History to 1877* or<br>American History Since 1877* | 6  |  |
| *Satisfies the State of Missouri government requirement.                                                                                                                                         |                                                                                                                                                                                                                                           |    |                                                                                                                           |                                                                                                                                                                                                                                                                 |    |  |
| Behavioral and Social Sciences                                                                                                                                                                   |                                                                                                                                                                                                                                           |    |                                                                                                                           |                                                                                                                                                                                                                                                                 |    |  |
| Select 3 hours.                                                                                                                                                                                  |                                                                                                                                                                                                                                           |    |                                                                                                                           |                                                                                                                                                                                                                                                                 |    |  |
| PHI 201 or<br>PHI 331 or<br>POL 150* or<br>PSY 101 or<br>ECO 101 or<br>ECO 202 or<br>Foreign Language                                                                                            | Intro to Philosophy or<br>Symbolic Logic or<br>Intro to American Government* or<br>Intro to Psychological Science or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language | 3  | PHILOS 1105 or<br>PHILOS 1115 or<br>POL SCI 1200* or<br>PSYCH 1101 or<br>ECON 1100 or<br>ECON 1200 or<br>Foreign Language | Self and World: Intro to Philosophy or<br>Logic and Reasoning: An Introduction or<br>American Government* or<br>General Psychology or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language      | 3  |  |
| *Satisfies the State of Missouri government requirement.                                                                                                                                         |                                                                                                                                                                                                                                           |    |                                                                                                                           |                                                                                                                                                                                                                                                                 |    |  |
| No free electives applied to the degree.                                                                                                                                                         |                                                                                                                                                                                                                                           | 0  | Maximum Free Electives                                                                                                    |                                                                                                                                                                                                                                                                 | 0  |  |
| Group 2 Major Requirements                                                                                                                                                                       |                                                                                                                                                                                                                                           | 34 | Group 2 Major Requirements                                                                                                |                                                                                                                                                                                                                                                                 | 31 |  |
| Group 1 Core Requirements                                                                                                                                                                        |                                                                                                                                                                                                                                           | 34 | Group 1 Core Requirements                                                                                                 |                                                                                                                                                                                                                                                                 | 26 |  |
| Total Hours                                                                                                                                                                                      |                                                                                                                                                                                                                                           | 68 | Total Hours*                                                                                                              |                                                                                                                                                                                                                                                                 | 57 |  |
| *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

| William Jewell College                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                    |    | Semester                                                                                                                                     | Missouri S&T                                                                                                                                                                                                                                                                             |              |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--|
| CHE 121, 121L                                                                                                                                                                                                                            | General Chemistry I and Lab                                                                                                                                                                                                                                        | 5  | CHEM 1310, 1319                                                                                                                              | General Chemistry I and Lab                                                                                                                                                                                                                                                              | 5            |  |
| DTS 190                                                                                                                                                                                                                                  | Intro to Computer Science                                                                                                                                                                                                                                          | 4  | CS 1500                                                                                                                                      | Computational Problem Solving                                                                                                                                                                                                                                                            | 3            |  |
| EGR 230                                                                                                                                                                                                                                  | Statics                                                                                                                                                                                                                                                            | 3  | CIV ENG 2200                                                                                                                                 | Engineering Mechanics-Statics                                                                                                                                                                                                                                                            | 3            |  |
| PHY 443 or<br>EGR 231                                                                                                                                                                                                                    | Classical Mechanics (4) or<br>Dynamics (3)                                                                                                                                                                                                                         | 3  | MECH ENG 2350                                                                                                                                | Engineering Mechanics-Dynamics                                                                                                                                                                                                                                                           | 2            |  |
| EGR 233                                                                                                                                                                                                                                  | Mechanics of Solids                                                                                                                                                                                                                                                | 3  | CIV ENG 2210                                                                                                                                 | Mechanics of Materials                                                                                                                                                                                                                                                                   | 3            |  |
| MAT 301                                                                                                                                                                                                                                  | Intro to Probability                                                                                                                                                                                                                                               | 4  | STAT 3117*                                                                                                                                   | Intro to Probability and Statistics*                                                                                                                                                                                                                                                     | 3            |  |
| *STAT 3117 will be substituted for the statistics requirement.                                                                                                                                                                           |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |              |  |
| Humanities, Arts, and Social Sciences General Education Requirements                                                                                                                                                                     |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |              |  |
| From the options listed in each group below, select 15 hours to include<br>6 hours Humanities and Fine Arts from at least two specific disciplines and<br>6 hours Behavioral and Social Sciences from at least two specific disciplines. |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |              |  |
| *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.                                                                                            |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |              |  |
| Humanities and Fine Arts                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |              |  |
| Select 6 hours from at least two specific disciplines.                                                                                                                                                                                   |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |              |  |
| ENG 340 or<br>ENG 345 or<br>ENG 350 or<br>ENG 360 or<br>HIS 121* or<br>HIS 122* or                                                                                                                                                       | Studies in English Literature I or<br>Studies in English Literature II or<br>Studies in U.S. Literature I or<br>Great Works of World Literature or<br>Foundations of U.S. History* or<br>The Modern United States*                                                 | 6  | ENGLISH 1211 or<br>ENGLISH 1212 or<br>ENGLISH 1222 or<br>ENGLISH 1231 or<br>HISTORY 1300* or<br>HISTORY 1310*                                | British Literature I: The Beginnings to 1800 or<br>British Literature II: 1800 to Present or<br>American Literature: 1865 to Present or<br>World Literature I: Beginnings to the Renaissance or<br>American History to 1877* or<br>American History Since 1877*                          | 6            |  |
| *Satisfies the State of Missouri government requirement.                                                                                                                                                                                 |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |              |  |
| Behavioral and Social Sciences                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |              |  |
| Select 6 hours from at least two specific disciplines.                                                                                                                                                                                   |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |              |  |
| GEO 304 or<br>PHI 201 or<br>PHI 331 or<br>POL 150* or<br>PSY 101 or<br>ECO 101 or<br>ECO 202 or<br>Foreign Language                                                                                                                      | Economic Geography or<br>Intro to Philosophy or<br>Symbolic Logic or<br>Intro to American Government* or<br>Intro to Psychological Science or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language | 6  | HISTORY 2110 or<br>PHILOS 1105 or<br>PHILOS 1115 or<br>POL SCI 1200* or<br>PSYCH 1101 or<br>ECON 1100 or<br>ECON 1200 or<br>Foreign Language | World Regional Geography or<br>Self and World: Intro to Philosophy or<br>Logic and Reasoning: An Introduction or<br>American Government*or<br>General Psychology or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language | 6            |  |
| *Satisfies the State of Missouri government requirement.                                                                                                                                                                                 |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |              |  |
| Humanities, Arts, and Social Sciences                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |              |  |
| Select 3 hours.                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |              |  |
| HASS Elective                                                                                                                                                                                                                            | Humanities, Arts, Social Sciences Elective: Any history, art,<br>music, theater, English and technical communication,<br>philosophy, political science, psychology, economics,<br>etymology, or foreign language.                                                  | 3  | HASS Elective                                                                                                                                | Humanities, Arts, Social Sciences Elective: Any history, art,<br>music, theater, English and technical communication,<br>philosophy, political science, psychology, economics,<br>etymology, or foreign language.                                                                        | 3            |  |
| No free electives applied to the degree.                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                    | 0  | Maximum Free Electives                                                                                                                       |                                                                                                                                                                                                                                                                                          | 0            |  |
| Group 2 Major Requirements                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                    | 37 | Group 2 Major Requirements                                                                                                                   |                                                                                                                                                                                                                                                                                          | 34           |  |
| Group 1 Core Requirements                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                    | 34 | Group 1 Core Requirements                                                                                                                    |                                                                                                                                                                                                                                                                                          | 26           |  |
| Total Hours                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                    | 71 |                                                                                                                                              |                                                                                                                                                                                                                                                                                          | Total Hours* |  |
|                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          | 60           |  |
| *S&T advisor permission is required to transfer more than 65 credits toward the S&T Geological Engineering degree.                                                                                                                       |                                                                                                                                                                                                                                                                    |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                          |              |  |

## Mechanical Engineering Group 2 Major Requirements

| William Jewell College                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                | Semester | Missouri S&T                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                       |    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| COM 100                                                                                                                                                                                                                                  | Fundamentals of Speech Communication                                                                                                                                                                                                                                                                                           | 3        | SPMS 1185                                                                                                                                    | Principles of Speech<br>Applies to degree as Gen Ed Communication requirement.                                                                                                                                                                                                                                                                        | 3  |
| CHE 121, 121L                                                                                                                                                                                                                            | General Chemistry I and Lab                                                                                                                                                                                                                                                                                                    | 5        | CHEM 1310*, 1319                                                                                                                             | General Chemistry I and Lab<br>*CHEM 1310 will be substituted for CHEM 1305.                                                                                                                                                                                                                                                                          | 5  |
| EGR 230                                                                                                                                                                                                                                  | Statics                                                                                                                                                                                                                                                                                                                        | 3        | CIV ENG 2200                                                                                                                                 | Engineering Mechanics-Statics                                                                                                                                                                                                                                                                                                                         | 3  |
| PHY 443                                                                                                                                                                                                                                  | Classical Mechanics                                                                                                                                                                                                                                                                                                            | 4        | AERO ENG 2360                                                                                                                                | Dynamics                                                                                                                                                                                                                                                                                                                                              | 3  |
| EGR 233                                                                                                                                                                                                                                  | Mechanics of Solids                                                                                                                                                                                                                                                                                                            | 3        | CIV ENG 2210                                                                                                                                 | Mechanics of Materials                                                                                                                                                                                                                                                                                                                                | 3  |
| MAT 281                                                                                                                                                                                                                                  | Linear Algebra                                                                                                                                                                                                                                                                                                                 | 4        | MATH 3108                                                                                                                                    | Linear Algebra I<br>Satisfies the Advanced Math/Statistics elective requirement.                                                                                                                                                                                                                                                                      | 3  |
| Humanities, Arts, and Social Sciences General Education Requirements                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                       |    |
| From the options listed in each group below, select 15 hours to include<br>6 hours Humanities and Fine Arts from at least two specific disciplines and<br>6 hours Behavioral and Social Sciences from at least two specific disciplines. |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                       |    |
| *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.                                                                                            |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                       |    |
| Humanities and Fine Arts                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                       |    |
| Select 6 hours from at least two specific disciplines.                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                       |    |
| ENG 340 or<br>ENG 345 or<br>ENG 350 or<br>ENG 360 or<br>HIS 121* or<br>HIS 122* or                                                                                                                                                       | Studies in English Literature I or<br>Studies in English Literature II or<br>Studies in U.S. Literature I or<br>Great Works of World Literature or<br>Foundations of U.S. History* or<br>The Modern United States*<br>*Satisfies the State of Missouri government requirement.                                                 | 6        | ENGLISH 1211 or<br>ENGLISH 1212 or<br>ENGLISH 1222 or<br>ENGLISH 1231 or<br>HISTORY 1300* or<br>HISTORY 1310*                                | British Literature I: The Beginnings to 1800 or<br>British Literature II: 1800 to Present or<br>American Literature: 1865 to Present or<br>World Literature I: Beginnings to the Renaissance or<br>American History to 1877* or<br>American History Since 1877*<br>*Satisfies the State of Missouri government requirement.                           | 6  |
| Behavioral and Social Sciences                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                       |    |
| Select 6 hours from at least two specific disciplines.                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                       |    |
| GEO 304 or<br>PHI 201 or<br>PHI 331 or<br>POL 150* or<br>PSY 101 or<br>ECO 101 or<br>ECO 202 or<br>Foreign Language                                                                                                                      | Economic Geography or<br>Intro to Philosophy or<br>Symbolic Logic or<br>Intro to American Government* or<br>Intro to Psychological Science or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br>*Satisfies the State of Missouri government requirement. | 6        | HISTORY 2110 or<br>PHILOS 1105 or<br>PHILOS 1115 or<br>POL SCI 1200* or<br>PSYCH 1101 or<br>ECON 1100 or<br>ECON 1200 or<br>Foreign Language | World Regional Geography or<br>Self and World: Intro to Philosophy or<br>Logic and Reasoning: An Introduction or<br>American Government* or<br>General Psychology or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br>*Satisfies the State of Missouri government requirement. | 6  |
| Humanities, Arts, and Social Sciences                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                       |    |
| Select 3 hours.                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                       |    |
| HASS Elective                                                                                                                                                                                                                            | Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.                                                                                                                       | 3        | HASS Elective                                                                                                                                | Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.                                                                                                                                              | 3  |
| No free electives applied to the degree.                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                | 0        | Maximum Free Electives                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                       | 0  |
| Group 2 Major Requirements                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                | 37       | Group 2 Major Requirements                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                       | 35 |
| Group 1 Core Requirements                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                | 34       | Group 1 Core Requirements                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                       | 26 |
| Total Hours                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                | 71       | 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

| William Jewell College                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                | Semester | Missouri S&T                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                      |                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| COM 100                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Fundamentals of Speech Communication                                                                                                                                                                                                                                                                                           | 3        | SPMS 1185                                                                                                                                    | Principles of Speech<br>Applies to degree as Gen Ed Communication requirement.                                                                                                                                                                                                                                                                       | 3               |
| EGR 230                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Statics                                                                                                                                                                                                                                                                                                                        | 3        | CIV ENG 2200                                                                                                                                 | Engineering Mechanics-Statics                                                                                                                                                                                                                                                                                                                        | 3               |
| EGR 233                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Mechanics of Solids                                                                                                                                                                                                                                                                                                            | 3        | CIV ENG 2210                                                                                                                                 | Mechanics of Materials                                                                                                                                                                                                                                                                                                                               | 3               |
| CHE 121, 121L                                                                                                                                                                                                                                                                                                                                                                                                                                                     | General Chemistry I and Lab                                                                                                                                                                                                                                                                                                    | 5        | CHEM 1310, 1319                                                                                                                              | General Chemistry I and Lab                                                                                                                                                                                                                                                                                                                          | 5               |
| CHE 122, 122L                                                                                                                                                                                                                                                                                                                                                                                                                                                     | General Chemistry II and Lab                                                                                                                                                                                                                                                                                                   | 5        | CHEM 1320, 1510*                                                                                                                             | General Chemistry II (3) and Qualitative Analysis (2)<br>*CHEM 1510 is not a degree requirement, transfers as general elective credit.                                                                                                                                                                                                               | 3               |
| CHE 301 or<br>PHY 316                                                                                                                                                                                                                                                                                                                                                                                                                                             | Organic Chemistry I or<br>Modern Physics                                                                                                                                                                                                                                                                                       | 4        | CHEM 2210 or<br>PHYSICS 2305                                                                                                                 | Organic Chemistry I (4) or<br>Intro to Modern Physics (3)<br>Not specifically required for the degree but will satisfy Out-of-Department Technical<br>Elective Requirement.                                                                                                                                                                          | 3               |
| Humanities, Arts, and Social Sciences General Education Requirements<br>From the options listed in each group below, select 15 hours to include<br>6 hours Humanities and Fine Arts from at least two specific disciplines and<br>6 hours Behavioral and Social Sciences from at least two specific disciplines.<br>*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement. |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |                 |
| Humanities and Fine Arts<br>Select 6 hours from at least two specific disciplines.                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |                 |
| ENG 340 or<br>ENG 345 or<br>ENG 350 or<br>ENG 360 or<br>HIS 121* or<br>HIS 122* or                                                                                                                                                                                                                                                                                                                                                                                | Studies in English Literature I or<br>Studies in English Literature II or<br>Studies in U.S. Literature I or<br>Great Works of World Literature or<br>Foundations of U.S. History* or<br>The Modern United States*<br>*Satisfies the State of Missouri government requirement.                                                 | 6        | ENGLISH 1211 or<br>ENGLISH 1212 or<br>ENGLISH 1222 or<br>ENGLISH 1231 or<br>HISTORY 1300* or<br>HISTORY 1310*                                | British Literature I: The Beginnings to 1800 or<br>British Literature II: 1800 to Present or<br>American Literature: 1865 to Present or<br>World Literature I: Beginnings to the Renaissance or<br>American History to 1877* or<br>American History Since 1877*<br>*Satisfies the State of Missouri government requirement.                          | 6               |
| Behavioral and Social Sciences<br>Select 6 hours from at least two specific disciplines.                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |                 |
| GEO 304 or<br>PHI 201 or<br>PHI 331 or<br>POL 150* or<br>PSY 101 or<br>ECO 101 or<br>ECO 202 or<br>Foreign Language                                                                                                                                                                                                                                                                                                                                               | Economic Geography or<br>Intro to Philosophy or<br>Symbolic Logic or<br>Intro to American Government* or<br>Intro to Psychological Science or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br>*Satisfies the State of Missouri government requirement. | 6        | HISTORY 2110 or<br>PHILOS 1105 or<br>PHILOS 1115 or<br>POL SCI 1200* or<br>PSYCH 1101 or<br>ECON 1100 or<br>ECON 1200 or<br>Foreign Language | World Regional Geography or<br>Self and World: Intro to Philosophy or<br>Logic and Reasoning: An Introduction or<br>American Government*or<br>General Psychology or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br>*Satisfies the State of Missouri government requirement. | 6               |
| Humanities, Arts, and Social Sciences<br>Select 3 hours.                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |                 |
| HASS Elective                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Humanities, Arts, Social Sciences Elective: Any history, art,<br>music, theater, English and technical communication,<br>philosophy, political science, psychology, economics,<br>etymology, or foreign language.                                                                                                              | 3        | HASS Elective                                                                                                                                | Humanities, Arts, Social Sciences Elective: Any history, art,<br>music, theater, English and technical communication,<br>philosophy, political science, psychology, economics,<br>etymology, or foreign language.                                                                                                                                    | 3               |
| Maximum Free Electives                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                | 3        | Maximum Free Electives                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                      | 3               |
| Group 2 Major Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                | 41       | Group 2 Major Requirements                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                      | 38              |
| Group 1 Core Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                | 34       | Group 1 Core Requirements                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                      | 26              |
| Total Hours                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                | 75       |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      | Total Hours* 64 |
| *S&T advisor permission is required to transfer more than 68 credits toward the S&T<br>Metallurgical Engineering degree.                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                |          |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |                 |

## Mining Engineering Group 2 Major Requirements

| William Jewell College                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                |    | Semester                                                                                                                                     | Missouri S&T                                                                                                                                                                                                                                                                                                                                         |    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| COM 100                                                                                                                                                                                                                                  | Fundamentals of Speech Communication                                                                                                                                                                                                                                                                                           | 3  | SPMS 1185                                                                                                                                    | Principles of Speech<br>Applies to degree as Gen Ed Communication requirement.                                                                                                                                                                                                                                                                       | 3  |
| MAT 301                                                                                                                                                                                                                                  | Intro to Probability                                                                                                                                                                                                                                                                                                           | 4  | STAT 3117*                                                                                                                                   | Intro to Probability and Statistics*<br>*Will be substituted for the STAT 3113/3115 requirement.                                                                                                                                                                                                                                                     | 3  |
| CHE 121, 121L                                                                                                                                                                                                                            | General Chemistry I and Lab                                                                                                                                                                                                                                                                                                    | 5  | CHEM 1310, 1319                                                                                                                              | General Chemistry I and Lab                                                                                                                                                                                                                                                                                                                          | 5  |
| EGR 230                                                                                                                                                                                                                                  | Statics                                                                                                                                                                                                                                                                                                                        | 3  | CIV ENG 2200                                                                                                                                 | Engineering Mechanics-Statics                                                                                                                                                                                                                                                                                                                        | 3  |
| PHY 443 or<br>EGR 231                                                                                                                                                                                                                    | Classical Mechanics (4) or<br>Dynamics (3)                                                                                                                                                                                                                                                                                     | 3  | MECH ENG 2350                                                                                                                                | Engineering Mechanics-Dynamics                                                                                                                                                                                                                                                                                                                       | 2  |
| EGR 233                                                                                                                                                                                                                                  | Mechanics of Solids                                                                                                                                                                                                                                                                                                            | 3  | CIV ENG 2210                                                                                                                                 | Mechanics of Materials                                                                                                                                                                                                                                                                                                                               | 3  |
| Humanities, Arts, and Social Sciences General Education Requirements                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| From the options listed in each group below, select 12 hours to include<br>6 hours Humanities and Fine Arts from at least two specific disciplines and<br>6 hours Behavioral and Social Sciences from at least two specific disciplines. |                                                                                                                                                                                                                                                                                                                                |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.                                                                                            |                                                                                                                                                                                                                                                                                                                                |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| Humanities and Fine Arts                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| Select 6 hours from at least two specific disciplines.                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| ENG 340 or<br>ENG 345 or<br>ENG 350 or<br>ENG 360 or<br>HIS 121* or<br>HIS 122* or                                                                                                                                                       | Studies in English Literature I or<br>Studies in English Literature II or<br>Studies in U.S. Literature I or<br>Great Works of World Literature or<br>Foundations of U.S. History* or<br>The Modern United States*                                                                                                             | 6  | ENGLISH 1211 or<br>ENGLISH 1212 or<br>ENGLISH 1222 or<br>ENGLISH 1231 or<br>HISTORY 1300* or<br>HISTORY 1310*                                | British Literature I: The Beginnings to 1800 or<br>British Literature II: 1800 to Present or<br>American Literature: 1865 to Present or<br>World Literature I: Beginnings to the Renaissance or<br>American History to 1877* or<br>American History Since 1877*                                                                                      | 6  |
| *Satisfies the State of Missouri government requirement.                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| Behavioral and Social Sciences                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| Select 6 hours from at least two specific disciplines.                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
| GEO 304 or<br>PHI 201 or<br>PHI 331 or<br>POL 150* or<br>PSY 101 or<br>ECO 101 or<br>ECO 202 or<br>Foreign Language                                                                                                                      | Economic Geography or<br>Intro to Philosophy or<br>Symbolic Logic or<br>Intro to American Government* or<br>Intro to Psychological Science or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br>*Satisfies the State of Missouri government requirement. | 6  | HISTORY 2110 or<br>PHILOS 1105 or<br>PHILOS 1115 or<br>POL SCI 1200* or<br>PSYCH 1101 or<br>ECON 1100 or<br>ECON 1200 or<br>Foreign Language | World Regional Geography or<br>Self and World: Intro to Philosophy or<br>Logic and Reasoning: An Introduction or<br>American Government*or<br>General Psychology or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br>*Satisfies the State of Missouri government requirement. | 6  |
| No free electives applied to the degree.                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                |    |                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                      |    |
|                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                | 0  | Maximum Free Electives                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                      | 0  |
| Group 2 Major Requirements                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                | 33 | Group 2 Major Requirements                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                      | 31 |
| Group 1 Core Requirements                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                | 34 | Group 1 Core Requirements                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                      | 26 |
| Total Hours                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                | 67 | Total Hours*                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                      | 57 |
| *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

| William Jewell College                                                                                                                        |                                                                                                                                                                                                                                                          | Semester | Missouri S&T                                                                                                  |                                                                                                                                                                                                                                                                                |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| COM 100                                                                                                                                       | Fundamentals of Speech Communication                                                                                                                                                                                                                     | 3        | SPMS 1185                                                                                                     | Principles of Speech<br>Applies to degree as Gen Ed Communication requirement.                                                                                                                                                                                                 | 3  |
| CHE 121, 121L                                                                                                                                 | General Chemistry I and Lab                                                                                                                                                                                                                              | 5        | CHEM 1310, 1319                                                                                               | General Chemistry I and Lab                                                                                                                                                                                                                                                    | 5  |
| MAT 281                                                                                                                                       | Linear Algebra                                                                                                                                                                                                                                           | 4        | MATH 3108                                                                                                     | Linear Algebra I                                                                                                                                                                                                                                                               | 3  |
| EGR 230                                                                                                                                       | Statics                                                                                                                                                                                                                                                  | 3        | CIV ENG 2200                                                                                                  | Engineering Mechanics-Statics                                                                                                                                                                                                                                                  | 3  |
| EGR 233                                                                                                                                       | Mechanics of Solids                                                                                                                                                                                                                                      | 3        | CIV ENG 2210                                                                                                  | Mechanics of Materials                                                                                                                                                                                                                                                         | 3  |
| MAT 301                                                                                                                                       | Intro to Probability                                                                                                                                                                                                                                     | 4        | STAT 3117                                                                                                     | Intro to Probability and Statistics                                                                                                                                                                                                                                            | 3  |
| PHY 316                                                                                                                                       | Modern Physics                                                                                                                                                                                                                                           | 4        | PHYSICS 2305                                                                                                  | Intro to Modern Physics                                                                                                                                                                                                                                                        | 3  |
| Humanities, Arts, and Social Sciences General Education Requirements                                                                          |                                                                                                                                                                                                                                                          |          |                                                                                                               |                                                                                                                                                                                                                                                                                |    |
| From the options listed in each group below, select 15 hours to include                                                                       |                                                                                                                                                                                                                                                          |          |                                                                                                               |                                                                                                                                                                                                                                                                                |    |
| 6 hours Humanities and Fine Arts from at least two specific disciplines and                                                                   |                                                                                                                                                                                                                                                          |          |                                                                                                               |                                                                                                                                                                                                                                                                                |    |
| 6 hours Behavioral and Social Sciences from at least two specific disciplines.                                                                |                                                                                                                                                                                                                                                          |          |                                                                                                               |                                                                                                                                                                                                                                                                                |    |
| *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement. |                                                                                                                                                                                                                                                          |          |                                                                                                               |                                                                                                                                                                                                                                                                                |    |
| Humanities and Fine Arts                                                                                                                      |                                                                                                                                                                                                                                                          |          |                                                                                                               |                                                                                                                                                                                                                                                                                |    |
| Select 6 hours from at least two specific disciplines.                                                                                        |                                                                                                                                                                                                                                                          |          |                                                                                                               |                                                                                                                                                                                                                                                                                |    |
| ENG 340 or<br>ENG 345 or<br>ENG 350 or<br>ENG 360 or<br>HIS 121* or<br>HIS 122* or                                                            | Studies in English Literature I or<br>Studies in English Literature II or<br>Studies in U.S. Literature I or<br>Great Works of World Literature or<br>Foundations of U.S. History* or<br>The Modern United States*                                       | 6        | ENGLISH 1211 or<br>ENGLISH 1212 or<br>ENGLISH 1222 or<br>ENGLISH 1231 or<br>HISTORY 1300* or<br>HISTORY 1310* | British Literature I: The Beginnings to 1800 or<br>British Literature II: 1800 to Present or<br>American Literature: 1865 to Present or<br>World Literature I: Beginnings to the Renaissance or<br>American History to 1877* or<br>American History Since 1877*                | 6  |
| *Satisfies the State of Missouri government requirement.                                                                                      |                                                                                                                                                                                                                                                          |          |                                                                                                               | *Satisfies the State of Missouri government requirement.                                                                                                                                                                                                                       |    |
| Behavioral and Social Sciences                                                                                                                |                                                                                                                                                                                                                                                          |          |                                                                                                               |                                                                                                                                                                                                                                                                                |    |
| Select 6 hours from at least two specific disciplines.                                                                                        |                                                                                                                                                                                                                                                          |          |                                                                                                               |                                                                                                                                                                                                                                                                                |    |
| ECO 101 or<br>ECO 202                                                                                                                         | Principles of Microeconomics or<br>Principles of Macroeconomics                                                                                                                                                                                          | 3        | ECON 1100 or<br>ECON 1200                                                                                     | Principles of Microeconomics or<br>Principles of Macroeconomics                                                                                                                                                                                                                | 3  |
| GEO 304 or<br>PHI 201 or<br>PHI 331 or<br>POL 150* or<br>PSY 101 or<br>Foreign Language                                                       | Economic Geography or<br>Intro to Philosophy or<br>Symbolic Logic or<br>Intro to American Government* or<br>Intro to Psychological Science or<br>Elementary or Intermediate Foreign Language<br>*Satisfies the State of Missouri government requirement. | 3        | HISTORY 2110 or<br>PHILOS 1105 or<br>PHILOS 1115 or<br>POL SCI 1200* or<br>PSYCH 1101 or<br>Foreign Language  | World Regional Geography or<br>Self and World: Intro to Philosophy or<br>Logic and Reasoning: An Introduction or<br>American Government*or<br>General Psychology or<br>Elementary or Intermediate Foreign Language<br>*Satisfies the State of Missouri government requirement. | 3  |
| Humanities, Arts, and Social Sciences                                                                                                         |                                                                                                                                                                                                                                                          |          |                                                                                                               |                                                                                                                                                                                                                                                                                |    |
| Select 3 hours.                                                                                                                               |                                                                                                                                                                                                                                                          |          |                                                                                                               |                                                                                                                                                                                                                                                                                |    |
| HASS Elective                                                                                                                                 | Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.                                                 | 3        | HASS Elective                                                                                                 | Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.                                                                       | 3  |
| Maximum Free Electives                                                                                                                        |                                                                                                                                                                                                                                                          | 0        | Maximum Free Electives                                                                                        |                                                                                                                                                                                                                                                                                | 0  |
| Group 2 Major Requirements                                                                                                                    |                                                                                                                                                                                                                                                          | 41       | Group 2 Major Requirements                                                                                    |                                                                                                                                                                                                                                                                                | 38 |
| Group 1 Core Requirements                                                                                                                     |                                                                                                                                                                                                                                                          | 34       | Group 1 Core Requirements                                                                                     |                                                                                                                                                                                                                                                                                | 26 |
| Total Hours                                                                                                                                   |                                                                                                                                                                                                                                                          | 75       | Total Hours*                                                                                                  |                                                                                                                                                                                                                                                                                | 64 |
| *S&T advisor permission is required to transfer more than 69 credits toward the S&T Nuclear Engineering degree.                               |                                                                                                                                                                                                                                                          |          |                                                                                                               |                                                                                                                                                                                                                                                                                |    |

## Petroleum Engineering Group 2 Major Requirements

| <u>William Jewell College</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                      | <u>Semester</u> | <u>Missouri S&amp;T</u>                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                             |              |    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----|
| COM 100                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Fundamentals of Speech Communication                                                                                                                                                                                                                                                                                                                 | 3               | SPMS 1185                                                                                                                                           | Principles of Speech<br><small>Applies to degree as Gen Ed Communication requirement.</small>                                                                                                                                                                                                                                                                               | 3            |    |
| CHE 121, 121L                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | General Chemistry I and Lab                                                                                                                                                                                                                                                                                                                          | 5               | CHEM 1310, 1319                                                                                                                                     | General Chemistry I and Lab                                                                                                                                                                                                                                                                                                                                                 | 5            |    |
| DTS 190                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Intro to Computer Science                                                                                                                                                                                                                                                                                                                            | 4               | CS 1500                                                                                                                                             | Computational Problem Solving                                                                                                                                                                                                                                                                                                                                               | 3            |    |
| EGR 230                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Statics                                                                                                                                                                                                                                                                                                                                              | 3               | CIV ENG 2200                                                                                                                                        | Engineering Mechanics-Statics                                                                                                                                                                                                                                                                                                                                               | 3            |    |
| PHY 443 or<br>EGR 231                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Classical Mechanics (4) or<br>Dynamics (3)                                                                                                                                                                                                                                                                                                           | 3               | MECH ENG 2350                                                                                                                                       | Engineering Mechanics-Dynamics                                                                                                                                                                                                                                                                                                                                              | 2            |    |
| EGR 233                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Mechanics of Solids                                                                                                                                                                                                                                                                                                                                  | 3               | CIV ENG 2210                                                                                                                                        | Mechanics of Materials                                                                                                                                                                                                                                                                                                                                                      | 3            |    |
| <b>Humanities, Arts, and Social Sciences General Education Requirements</b><br>From the options listed in each group below, select 15 hours to include<br>6 hours Humanities and Fine Arts from at least two specific disciplines and<br>6 hours Behavioral and Social Sciences from at least two specific disciplines.<br><b>*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.</b> |                                                                                                                                                                                                                                                                                                                                                      |                 |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                             |              |    |
| <b>Humanities and Fine Arts</b><br>Select 6 hours from at least two specific disciplines.                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                      |                 |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                             |              |    |
| ENG 340 or<br>ENG 345 or<br>ENG 350 or<br>ENG 360 or<br><b>HIS 121*</b> or<br><b>HIS 122*</b> or                                                                                                                                                                                                                                                                                                                                                                                | Studies in English Literature I or<br>Studies in English Literature II or<br>Studies in U.S. Literature I or<br>Great Works of World Literature or<br><b>Foundations of U.S. History*</b> or<br><b>The Modern United States*</b><br><small>*Satisfies the State of Missouri government requirement.</small>                                          | 6               | ENGLISH 1211 or<br>ENGLISH 1212 or<br>ENGLISH 1222 or<br>ENGLISH 1231 or<br><b>HISTORY 1300*</b> or<br><b>HISTORY 1310*</b>                         | British Literature I: The Beginnings to 1800 or<br>British Literature II: 1800 to Present or<br>American Literature: 1865 to Present or<br>World Literature I: Beginnings to the Renaissance or<br><b>American History to 1877*</b> or<br><b>American History Since 1877*</b><br><small>*Satisfies the State of Missouri government requirement.</small>                    | 6            |    |
| <b>Behavioral and Social Sciences</b><br>Select 6 hours from at least two specific disciplines.                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                      |                 |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                             |              |    |
| GEO 304 or<br>PHI 201 or<br>PHI 331 or<br><b>POL 150*</b> or<br>PSY 101 or<br>ECO 101 or<br>ECO 202 or<br>Foreign Language                                                                                                                                                                                                                                                                                                                                                      | Economic Geography or<br>Intro to Philosophy or<br>Symbolic Logic or<br><b>Intro to American Government*</b> or<br>Intro to Psychological Science or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br><small>*Satisfies the State of Missouri government requirement.</small> | 6               | HISTORY 2110 or<br>PHILOS 1105 or<br>PHILOS 1115 or<br><b>POL SCI 1200*</b> or<br>PSYCH 1101 or<br>ECON 1100 or<br>ECON 1200 or<br>Foreign Language | World Regional Geography or<br>Self and World: Intro to Philosophy or<br>Logic and Reasoning: An Introduction or<br><b>American Government*</b> or<br>General Psychology or<br>Principles of Microeconomics or<br>Principles of Macroeconomics or<br>Elementary or Intermediate Foreign Language<br><small>*Satisfies the State of Missouri government requirement.</small> | 6            |    |
| <b>Humanities, Arts, and Social Sciences</b><br>Select 3 hours.                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                      |                 |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                             |              |    |
| HASS Elective                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.                                                                                                                                             | 3               | HASS Elective                                                                                                                                       | Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.                                                                                                                                                                    | 3            |    |
| <i>No free electives applied to the degree.</i>                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                      | 0               | Maximum Free Electives                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                             | 0            |    |
| Group 2 Major Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                      | 36              | Group 2 Major Requirements                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                             | 34           |    |
| Group 1 Core Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                      | 34              | Group 1 Core Requirements                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                             | 26           |    |
| Total Hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                      | 70              |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                             | Total Hours* | 60 |
| <small>*S&amp;T advisor permission is required to transfer more than 69 credits toward the S&amp;T Petroleum Engineering degree.</small>                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                      |                 |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                             |              |    |