

Truman State University-Washington University Engineering 3+2/4+2 Dual Degree Program

The purpose of this program is to allow the opportunity to complete an undergraduate education in both the liberal arts and engineering. Students who complete this program will earn a Bachelor of Arts or Bachelor of Science degree from Truman as well as a Bachelor of Science degree from Washington University in Engineering. Students in the program spend three years at Truman completing their Liberal Studies Program requirements and some or all of their Truman major degree requirements. After earning at least 90 credits towards a Truman degree, students transfer to Washington University and, after two years of study in the Engineering program, earn two Bachelor's degrees, one from each institution. Students have the option to remain at Washington University for an additional year in order to complete a Master's degree in Engineering.

Washington University offers the following Engineering majors:

- Biomedical Engineering
- Chemical Engineering
- Computer Engineering
- Computer Science ([not intended for Truman CS majors](#))
- Electrical Engineering
- Environmental Engineering
- Mechanical Engineering
- Systems Science and Engineering

Program Eligibility and Prerequisites

Students interested in the program can major in any field at Truman. However, Truman's degree programs in the STEM fields provide coursework that aligns best with engineering requirements and reverse transfer of courses to complete degree requirements. Students must complete all degree requirements for the degree at Truman. Some degrees may more easily transfer courses to count towards the degree. Students are encouraged to work with their advisor to establish a degree plan for completion of all requirements. The Truman Residency and Major Capstone requirements for graduation is waived for students in this program.

Engineering Core Requirements

Students interested in specific Engineering majors at Washington University must complete the additional requirements listed below. Prerequisites must be met for enrollment in courses that have them.

| Topic | Course Number | Title | Credits |
|----------------------------|---------------|-----------------------------|---------|
| General Chemistry with Lab | CHEM 130 | Chemical Principles I w/Lab | 4 |

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|--|----------|---|----|
| Computer Programming | CS 180 | Foundations of Computer Science I | 4 |
| English Composition | ENG 190 | Writing as Critical Thinking | 3 |
| Humanities and Social Sciences | | Fulfilled through completion of Social and Humanities & Aesthetic Perspectives in Truman's Dialogues Curriculum | 15 |
| Calculus Sequence | MATH 198 | Analytic Geometry and Calculus I | 5 |
| | MATH 263 | Analytic Geometry and Calculus II | 5 |
| | MATH 264 | Analytic Geometry and Calculus III | 3 |
| Differential Equations | MATH 365 | Ordinary Differential Equations | 3 |
| Matrix Algebra* | MATH 285 | Matrix Algebra | 3 |
| Linear Algebra* | MATH 357 | Linear Algebra | 3 |
| Physics Sequence | PHYS 195 | Physics with Calculus I w/Lab | 5 |
| | PHYS 196 | Physics with Calculus II w/Lab | 5 |
| *Matrix Algebra or Linear Algebra strongly recommended | | | |

Department-Specific Requirements

Students are advised to review curriculum guides

(<https://engineering.wustl.edu/prospective-students/dual-degree/>) and meet with their advisor to ensure that they are fulfilling all requirements for the program.

| Topic | Course Number | Title | Credits |
|---|---------------|------------------------------|---------|
| Biomedical Engineering | | | |
| Cellular, Molecular & Developmental Biology | BIOL 107 | Cells, Molecules, and Genes | 4 |
| General Chemistry II | CHEM 131 | Chemical Principles II w/Lab | 4 |
| Chemical Engineering | | | |
| Cellular, Molecular & Developmental Biology | BIOL 107 | Cells, Molecules, and Genes | 4 |
| General Chemistry II | CHEM 131 | Chemical Principles II w/Lab | 4 |

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|---|----------|--------------------------------|---|
| Organic Chemistry | CHEM 329 | Organic Chemistry I Lecture | 3 |
| Organic Chemistry Lab | CHEM 330 | Organic Chemistry I Lab | 1 |
| Organic Chemistry II* | CHEM 331 | Organic Chemistry II Lecture | 3 |
| Organic Chemistry II Lab* | CHEM 332 | Organic Chemistry II Lab | 1 |
| Physical Chemistry* | CHEM 323 | Physical Chemistry I | 3 |
| *Organic Chemistry II, Lab, and Physical Chemistry are strongly recommended for Chemical Engineering | | | |
| Computer Science & Computer Engineering | | | |
| Computer Programming | CS 181 | Founds. of Computer Science II | 3 |
| Note: Computer Science & Computer Engineering students are not required to complete chemistry or differential equations | | | |

Additional Criteria for Eligibility

In order to participate in the dual degree program with Washington University, Truman students must meet the following criteria before transferring to Washington University:

- Completion of a minimum of 90 credits towards an undergraduate degree at Truman
- An overall GPA of at least 3.25
- An overall GPA of at least 3.25 in math and science coursework
- Completion of all of Truman's Dialogues requirements (see below)
- Provide a letter of support from a faculty member in the School of Science and Mathematics at Truman
- Be in good academic standing, not undergoing review for student conduct code violations, and eligible to continue to study at Truman State University
- Demonstrate English language proficiency as determined by Washington University

If a student decides to not complete their degree program at Washington University, they will maintain eligibility to return to Truman to complete their bachelor's degree requirements. Transfer of courses from Washington University to Truman will be articulated at the point of transfer with the advice of Truman's transfer advisor or the program liaison, Dr. Ian Lindevald (Professor of Physics). Transfer credit will only be given for courses completed at Washington University with a grade of C- or higher.

AP Credit

AP credit will be accepted for completion of some Core Requirements. A score of 5 on the AP exam will fulfill credit for the following core requirements:

Physics C: Mechanics for PHYS 195

Physics C: Electricity and Magnetism for PHYS 196

Calculus AB for MATH 198

Calculus BC for MATH 198 and MATH 263

English Language and Composition for ENG 190

Note that AP credit will not be accepted for humanities and social science core requirements. Those courses must be completed while enrolled at Truman.

Truman Dialogues Curriculum

Truman's core liberal arts curriculum is called the "Dialogues". This curriculum is designed to help students engage in deep reading, critical thinking, professional writing, and communication. Courses in the Perspectives are designed to provide students with a broad liberal arts education to appreciate and understand how a wide variety of disciplines pursue and develop knowledge. The Interconnecting Perspectives help students understand and appreciate diversity of thought, culture, and language, as well as gain experiences that will impact their personal and professional development.

Interconnecting Perspectives

- Truman Symposium (1 credit) and Self and Society Seminar (3 credits)
- Junior Interdisciplinary Seminar (JINS) (3 credits)
- Writing-enhanced course (two courses, can double-count with other requirements)
- Foreign Language (Elementary Proficiency required for BS degrees, Intermediate Proficiency required for BA degrees; requirement is waived for ESOL students)
- Intercultural Requirement (up to 5 credits, can double-count with other requirements)
- High Impact Experience (0 credits)

Disciplinary Perspectives

- Communication Skills Perspective (6 credits; one course in English Composition, one course in Oral Communication)
- Social Perspective (9 credits from at least two different disciplines; including fulfillment of Missouri Statute Course)
- STEM Perspective (one lab-based course, Pre-Calculus or Calculus, and one additional STEM course)
- Arts and Humanities Perspective (9 credits from at least two different disciplines)
- Statistics Perspective (Basic Statistics)

Other Graduation Requirements

Major Program Requirements

- Capstone in major (0+ credits)
- Writing about Research (0+ credits)

Other Degree Requirements

- Civics exam
- Senior test
- Truman Portfolio