

# Bioengineering and Chemical Pre-Engineering AS-T (Chemical Option)

**2021-22**

## Program map for Bioengineering and Chemical Pre-Engineering Associate in Science-Transfer (AS-T), Chemical Engineering Option

Complete basic background studies for transfer to a bachelor's degree program in engineering disciplines. Careers may be found in research, development, design, operations management, teaching, sales and consulting.

See also:

- [Degree Requirements for Science, Technology, Engineering and Math programs](#)
- [Course descriptions in LCC Catalog](#)
- [Distribution lists in LCC Catalog](#)

***Please note that many course sequences only begin in fall quarter. Please check with your program advisor for more information.***

***Please review both the "By Quarter Overview" and "Detailed Class Sequence" tabs below.***

### By Quarter Overview

#### First Quarter

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- CHEM& 161: General Chemistry w/ Lab I (5 credits)
- COLL 101: College Success 101 (2 credits)
- MATH& 141: Precalculus I (6 credits)

**Make plan with advisor**

#### Second Quarter

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- CHEM& 162: General Chemistry w/ Lab II (5 credits)
- MATH& 142: Precalculus II (5 credits)
- Choose one:
  - ART& 100: Art Appreciation (5 credits)
  - CMST 250: Intercultural Communication (5 credits)
  - HIST& 126: World Civilization I (5 credits)

#### Third Quarter

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- CHEM& 163: General Chemistry w/ Lab III (5 credits)
- ENGL& 101: English Composition I (5 credits)

- Choose one:
  - ANTH& 100: Survey of Anthropology (5 credits)
  - ANTH& 206: Cultural Anthropology (5 credits)
  - HIST& 128: Western Civ III (5 credits)
  - HIST& 215: Women in US History (5 credits)

## Fourth Quarter

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- CHEM& 261: Organic Chemistry w/ Lab I (5 credits)
- MATH& 151: Calculus I (5 credits)

## Fifth Quarter

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- CHEM& 262: Organic Chemistry w/ Lab II (5 credits)
- MATH& 152: Calculus II (5 credits)

## Sixth Quarter

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- CHEM& 263: Organic Chemistry w/ Lab III (5 credits)
- MATH& 153: Calculus III (5 credits)

## Research 4-year institutions and electives

## Seventh Quarter

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- PHYS& 221: Engineering Physics I w/ Lab (5 credits)
- MATH& 254: Calculus IV (5 credits)

## Visit 4-year schools

## Eighth Quarter

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- PHYS& 222: Engineering Physics II w/ Lab (5 credits)
- MATH 240: Differential Equations (5 credits)

## Apply to 4-year schools

## Ninth Quarter

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- PHYS& 223: Engineering Physics III w/ Lab (5 credits)
- Choose one:
  - ECON& 201: Micro Economics (5 credits)
  - ECON& 202: Macro Economics (5 credits)
- MATH 220 Linear Algebra (5 credits)

## Apply for graduation

## Detailed Class Sequence

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## 1. Pre-Major Requirement

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CHEM& 161: General Chemistry w/ Lab I (5 credits)

- *Prerequisites: CHEM& 100 or high school chemistry and MATH 098.*

## 2. College Success

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COLL 101: College Success 101 (2 credits)

## 3. Prerequisite Coursework / Elective

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MATH& 141: Precalculus I (6 credits)

- *Prerequisites: C or better in MATH 098, B or better in ABE 092, or placement.*

## 4. Pre-Major Requirement

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CHEM& 162: General Chemistry w/ Lab II (5 credits)

- *Prerequisites: CHEM& 161*

## 5. Prerequisite Coursework / Elective

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MATH& 142: Precalculus II (5 credits)

- *Prerequisites: C or better in MATH& 141.*

## 6. Humanities / Diversity Requirement

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Choose one of these recommended courses:

- ART& 100: Art Appreciation (5 credits)
- CMST 250: Intercultural Communication (5 credits)
  - *Fulfills [DIVR] requirement at WSU*
- HIST& 126: World Civilization I (5 credits)
  - *Fulfills [DIVR] requirement at WSU*

## 7. Pre-Major Requirement

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CHEM& 163: General Chemistry w/ Lab III (5 credits)

- *Prerequisites: CHEM& 162*

## 8. Communication Requirement

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ENGL& 101: English Composition I (5 credits)

- *Prerequisites: College level reading and writing skills or completion of ENGL 099 or TECH 105 with a grade of C or better.*

## 9. Social Science Requirement

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Choose one of these recommended courses:

- ANTH& 100: Survey of Anthropology (5 credits)
  - *Fulfills [DIVR] requirement at WSU*
- ANTH& 206: Cultural Anthropology (5 credits)
  - *Fulfills [DIVR] requirement at WSU*
- HIST& 128: Western Civ III (5 credits)
  - *Fulfills [ROOT] requirement at WSU*
- HIST& 215: Women in US History (5 credits)
  - *Fulfills [DIVR] requirement at WSU*

## 10. Pre-Major Requirement

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CHEM& 261: Organic Chemistry w/ Lab I (5 credits)

- *Prerequisite: CHEM& 163 or instructor permission.*

## 11. Math Requirement

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MATH& 151: Calculus I (5 credits)

- *Prerequisites: MATH& 142 with a grade of C or better.*

## 12. Pre-Major Requirement

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CHEM& 262: Organic Chemistry w/ Lab II (5 credits)

- *Prerequisites: CHEM& 261*

## 13. Math Requirement

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MATH& 152: Calculus II (5 credits)

- *Prerequisite: MATH& 151 with a grade of C or better.*

## 14. Recommended Elective

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CHEM& 263: Organic Chemistry w/ Lab III (5 credits)

- *Prerequisite: CHEM& 262*

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## 15. Math Requirement

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MATH& 153: Calculus III (5 credits)

- *Prerequisite: MATH& 152 with a grade of C or better.*

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## 16. Pre-Major Requirement

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PHYS& 221: Engineering Physics I w/ Lab (5 credits)

- *Prerequisites: Completion of or concurrent enrollment in MATH& 151 or instructor permission.*

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## 17. Recommended Elective

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MATH& 254: Calculus IV (5 credits)

- *Prerequisites: MATH& 153 with a grade of C or better.*

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## 18. Pre-Major Requirement

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PHYS& 222: Engineering Physics II w/ Lab (5 credits)

- *Prerequisites: PHYS& 221, MATH& 152 or instructor permission.*

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## 19. Math Requirement

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MATH 240: Differential Equations (5 credits)

- *Prerequisite: MATH& 254 with a grade of C or better.*

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## 20. Pre-Major Requirement

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PHYS& 223: Engineering Physics III w/ Lab (5 credits)

- *Prerequisites: PHYS& 222 or instructor permission.*

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## 21. Social Science Requirement

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Choose one of these recommended courses:

- ECON& 201: Micro Economics (5 credits)
  - *Prerequisites: MATH 088 or TECH 088 or BUS 104 and ENGL& 101 or BUS 190.*
- ECON& 202: Macro Economics (5 credits)
  - *Prerequisite: ECON& 201 or instructor permission.*

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## 22. Recommended Elective

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MATH 220: Linear Algebra (5 credits)

- *Prerequisite: MATH& 152 with a grade of C or better.*

## **Program Maps for Science, Technology, Engineering and Math (STEM)**

- Bioengineering and Chemical Pre-Engineering - AS-T (Bioengineering Option)
- Bioengineering and Chemical Pre-Engineering - AS-T (Chemical Engineering Option)
- Biological Sciences - AS-T
- Biology - DTA/MRP
- Chemistry - AS-T
- Computer and Electrical Pre-Engineering - AS-T (2 Year Option)
- Computer and Electrical Pre-Engineering - AS-T (3 Year Option)
- Computer Science - AST
- Computer Science - AST (WSUV)
- Earth Sciences - AA-DTA
- Earth Sciences - AS-T
- Environmental Science - AS-T
- Mechanical, Civil, Aeronautical, Industrial, Materials Science Engineering (2 Year Option)
- Mechanical, Civil, Aeronautical, Industrial, Materials Science Engineering (3 Year Option)
- Mechanical Engineering Technology AS-T
- Physics - AS-T
- Physics - AS-T (Math Transfer Option)