

# Program map for Bioengineering & Chemical Pre-Engineering AS-T BIO/CHEM E/MRP (Chemical Option)



2026-27

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.

[View this program in the LCC Catalog \(lowercolumbia.edu/publications/catalog/programs/STEM-AST-Bioengineering-and-Chemical-Pre-Engineering\)](https://lowercolumbia.edu/publications/catalog/programs/STEM-AST-Bioengineering-and-Chemical-Pre-Engineering)

## See also

- [Degree Requirements for Science, Technology, Engineering and Math \(STEM\) programs \(lowercolumbia.edu/programs/stem\)](https://lowercolumbia.edu/programs/stem)
- [Course descriptions in the LCC Catalog \(lowercolumbia.edu/publications/catalog/courses\)](https://lowercolumbia.edu/publications/catalog/courses)
- [Distribution lists in the LCC Catalog \(lowercolumbia.edu/publications/catalog/distribution-lists\)](https://lowercolumbia.edu/publications/catalog/distribution-lists)

**Important:** Many course sequences only begin in fall quarter. Check with your program advisor.

## By Quarter Overview

### First Quarter

*Note: this is the By Quarter Overview for those who test into Pre-Calculus.*

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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 \(lowercolumbia.edu/advising/meet-with-advisor\)](https://lowercolumbia.edu/advising/meet-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:

## Third Quarter

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

## Fourth Quarter

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- CHEM& 261: Organic Chemistry w/ Lab I (5 credits)
- MATH& 151: Calculus I (5 credits)
- Choose one:
  - HIST& 126: World Civilization I (5 credits)
  - ANTH& 100: Survey of Anthropology (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 \(lowercolumbia.edu/university-center\)](http://lowercolumbia.edu/university-center)

## 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 \(lowercolumbia.edu/university-center\)](http://lowercolumbia.edu/university-center)

## 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 \(lowercolumbia.edu/university-center\)](http://lowercolumbia.edu/university-center)

## 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 \(lowercolumbia.edu/graduation\)](http://lowercolumbia.edu/graduation)

## Detailed Class Sequence

### 1. Pre-Major Requirement

*Note: this is the Detailed Class Sequence for those who test into Pre-Calculus.*

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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& 240: Intercultural Communication (5 credits)
- HIST& 126: World Civilization I (5 credits)

### 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.*

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## 14. Recommended Elective

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

- *Prerequisite: CHEM& 262*

## 15. Math Requirement

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MATH& 153: Calculus III (5 credits)

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

## 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.*

## 17. Recommended Elective

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MATH& 254: Calculus IV (5 credits)

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

## 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.*

## 19. Math Requirement

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MATH 240: Differential Equations (5 credits)

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

## 20. Pre-Major Requirement

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

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

## 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.*

## **22. Recommended Elective**

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MATH 220: Linear Algebra (5 credits)

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