

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



2025-26

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

- 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 \(lowercolumbia.edu/university-center\)](https://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 \(lowercolumbia.edu/university-center\)](https://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 \(lowercolumbia.edu/university-center\)](https://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 \(lowercolumbia.edu/graduation\)](https://lowercolumbia.edu/graduation)

Detailed Class Sequence

1. Pre-Major Requirement

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

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

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

2. College Success

COLL 101: College Success 101 (2 credits)

3. Prerequisite Coursework / Elective

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

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

- *Prerequisites: CHEM& 161*

5. Prerequisite Coursework / Elective

MATH& 142: Precalculus II (5 credits)

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

6. Humanities / Diversity Requirement

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

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

- *Prerequisites: CHEM& 162*

8. Communication Requirement

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

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

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

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

11. Math Requirement

MATH& 151: Calculus I (5 credits)

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

12. Pre-Major Requirement

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

- *Prerequisites: CHEM& 261*

13. Math Requirement

MATH& 152: Calculus II (5 credits)

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

14. Recommended Elective

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

- *Prerequisite: CHEM& 262*

15. Math Requirement

MATH& 153: Calculus III (5 credits)

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

16. Pre-Major Requirement

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

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

17. Recommended Elective

MATH& 254: Calculus IV (5 credits)

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

18. Pre-Major Requirement

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

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

19. Math Requirement

MATH 240: Differential Equations (5 credits)

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

20. Pre-Major Requirement

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

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

21. Social Science Requirement

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

MATH 220: Linear Algebra (5 credits)

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