Department of Mathematics and Statistics, Discovery Hall
University of Nebraska at Kearney

Computer Science Comprehensive plus Math Minor*

Adding a math minor to your CS degree is one of the most beneficial degree combinations for a Computer Science major, especially if you are interested in machine learning or doing research. Your math minor will give you a good foundation set theory, logic, and discrete probability, as well providing you with a high level of mathematical understanding. The curriculum guide for the American Association of Computing Machinery (ACM) deems these topics and skills as essential components for Computer Science education.

By carefully choosing your elective classes for the Computer Science Comprehensive degree, you can earn a minor in mathematics by taking only one three credit mathematics class beyond the mathematics classes required for your major. This guide shows you how to choose the electives in your program to also earn a math minor, but it does not list the non-math classes that you need to take.

If you would like to discuss the possibility of adding a math minor to your Computer Science Comprehensive degree, please contact Dr. Barton Willis, Department of Mathematics and Statistics, Discovery Hall (DSCH), Room 368, willisb@unk.edu or 308-865-8868.

For your General Studies LOPER 4 requirement take

- **MATH 115** Calculus I with Analytic Geometry (fall and spring) . . . . . 5 credits

For your Computer Science Comprehensive Core Requirements take

- **MATH 202** Calculus II with Analytic Geometry (fall and spring, prerequisite: MATH 115) . . . . . 5 credits
- **MATH 440** Linear Algebra (spring only, prerequisite: MATH 115) . . . . . 3 credits

For your required Computer Science electives take

- **MATH 250** Foundations of Math (fall and spring, prerequisite: MATH 115) . . . . . 3 credits
- **MATH 260** Calculus III (fall and spring, prerequisite: MATH 202) . . . . . 5 credits

This gives eight of the nine required elective credits. For the remaining one credit, you may choose any 300+ level class from CYBR, MATH, or PHYS.

For your required BS Science-related course requirement take

- **STAT 441** Probability and Statistics (spring only, prerequisite: MATH 260) . . . . . 3 credits

Alternatively, you may take STAT 241. But STAT 441 will give you a better understanding of discrete probability than STAT 241.

To complete the Mathematics Minor take

- **MATH 413** Discrete Mathematics (fall only, prerequisite: MATH 250) . . . . . 3 credits

Alternatively, you make take any *one* of MATH 310 (College Geometry, fall), MATH 350 (Abstract Algebra, spring), MATH 404 (Theory of Numbers, spring), or MATH 460 (Advanced Calculus I, fall), but of these options, MATH 413 is the class that is most relevant to the CS program.

Suggested mathematics course sequence

Freshman year Fall: MATH 115, Spring: MATH 202
Sophomore year Fall: MATH 260, Spring: MATH 250 and MATH 440
Junior year Fall: MATH 413, Spring: STAT 441

Once you declare a mathematics minor, your academic advisor will be happy to help you build a four-year plan for earning a minor in mathematics that fits with your other classes. If you start on a path toward earning a math minor, but latter decide to earn a Mathematics Bachelor of Science, all the mathematics and statistics classes listed here will count toward the Bachelor of Science degree.

*This plan is up to date for the 2020-2021 catalog. Also, the designation of a fall or spring class is anticipated, but it is subject to change.

Department of Mathematics and Statistics, Discovery Hall
University of Nebraska at Kearney

Computer Science Comprehensive plus Mathematics Bachelor of Science*

Adding a math major to your CS degree is one of the most beneficial combinations for a Computer Science degree, especially if you are interested in machine learning or doing research. Your math major will give you a solid foundation set theory, logic, and discrete probability, as well providing you with a high level of mathematical understanding. The curriculum guide for the American Association of Computing Machinery (ACM) deems these topics and skills as essential components for Computer Science education.

Our graduates who have earned dual degrees in CS and mathematics enjoy successful careers in Nebraska as well as throughout the United States. To list a few, UNK graduates with CS and math degrees, work as software engineers at well known companies such as The MathWorks, in Natick, Massachusetts, the Walt Disney Company, in New York, New York, and PaymentSpring, in Lincoln, Nebraska.

By carefully choosing your optional classes for the Computer Science Comprehensive degree, you can earn a major in mathematics by taking only five three credit classes beyond the mathematics classes required for your major. This guide shows you how to choose the electives in your program to also earn a math major, but it does not list the non-math classes that you need to take.

If you would like to discuss the possibility of adding a math major to your Computer Science Comprehensive degree, please contact Dr. Barton Willis, Department of Mathematics and Statistics, Discovery Hall (DSCH), Room 368, willisb@unk.edu or 308-865-8868..

For your General Studies LOPER 4 requirement take

- **MATH 115** Calculus I with Analytic Geometry (fall and spring) . . . . . 5 credits

For your mathematics classes required by the CS Major Option take

- **MATH 202** Calculus II with Analytic Geometry (fall and spring, prerequisite: MATH 115) . . . . . 5 credits
- **MATH 440** Linear Algebra (spring only, prerequisite: MATH 115) . . . . . 3 credits

For your required Computer Science electives take

- **MATH 250** Foundations of Math (fall and spring, prerequisite: MATH 115) . . . . . 3 credits
- **MATH 260** Calculus III (fall and spring, prerequisite: MATH 202) . . . . . 5 credits

This gives eight of the nine required elective credits. For the remaining one credit, you may choose any 300+ level class from CYBR, MATH, or PHYS.

For your required BS Science-related course requirement take

- **STAT 441** Probability and Statistics (spring only, prerequisite: MATH 260) . . . . . 3 credits

STAT 441 will count for three credits out of six required MATH or STAT electives.

For your Math Core requirements take

- **MATH 305** Differential Equations (spring only, prerequisite: MATH 260) . . . . . 3 credits
- **MATH 350** Abstract Algebra (spring only, prerequisite: MATH 250) . . . . . 3 credits
- **MATH 365** Complex Analysis (spring only, prerequisite: MATH 260) . . . . . 3 credits
- **MATH 460** Advanced Calculus I (fall only, prerequisite: MATH 250) . . . . . 3 credits

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For your Math Elective take *one* of

- **MATH 413** Discrete Mathematics (fall only, prerequisite: MATH 250) . . . . . 3 credits
- **MATH 420** Numerical Analysis (spring only, prerequisite: MATH 260) . . . . . 3 credits

Alternatively, you may take at least three credits from *any* MATH or STAT 300+ level courses. But the classes MATH 413 and MATH 420 are recommend by the department for our dual CS and Math majors. The course STAT 441 serves as your remaining Math Elective, for a total of six credits.

Suggested course sequence

Freshman year Fall MATH 115, Spring: MATH 202
Sophomore year Fall: MATH 250 and MATH 260, Spring: MATH 305 and MATH 440
Junior year Fall: MATH 413 (unless MATH 420 is planned), Spring: MATH 350 and STAT 441
Senior year Fall: MATH 460, Spring: MATH 420 (unless have taken MATH 413)

Your mathematics academic advisor will be happy to help you build a four-year plan for earning a Mathematics Bachelor of Science.

Department of Mathematics and Statistics, Discovery Hall
University of Nebraska at Kearney

Cyber Security Operations Comprehensive, Bachelor of Science plus Math Minor*

Adding a math minor to your CS degree is one of the most beneficial degree combinations for a Computer Science major, especially if you are interested in machine learning or research. Your math minor will give you a good foundation set theory, logic, and discrete probability, as well providing you with a high level of mathematical understanding. The curriculum guide for the American Association of Computing Machinery (ACM) deems these topics and skills as essential components for Computer Science education.

This guide shows you how to choose the electives in your program to also earn a math minor, but it does not list the non-math classes that you need to take.

If you would like to discuss the possibility of adding a math minor to your Computer Science Comprehensive degree, please contact Dr. Barton Willis, Department of Mathematics and Statistics, Discovery Hall (DSCH), Room 368, willisb@unk.edu or 308-865-8868..

For your General Studies LOPER 4 requirement take

- **MATH 115** Calculus I with Analytic Geometry (fall and spring) . . . . . 5 credits

To complete the Mathematics Minor take

- **MATH 202** Calculus II with Analytic Geometry (fall and spring, prerequisite: MATH 115) . . . . . 5 credits
- **MATH 250** Foundations of Math (fall and spring, prerequisite: MATH 115) . . . . . 3 credits
- **MATH 260** Calculus III (fall and spring, prerequisite: MATH 202) . . . . . 5 credits
- **MATH 413** Discrete Mathematics (fall only, prerequisite: MATH 250) . . . . . 3 credits
- **MATH 440** Linear Algebra (spring only, prerequisite: MATH 115) . . . . . 3 credits

Instead of taking MATH 413, you make take any *one* of MATH 310 (College Geometry, fall), MATH 350 (Abstract Algebra, spring), MATH 404 (Theory of Numbers, spring), or MATH 460 (Advanced Calculus I, fall), but of these options, MATH 413 is the class that is most relevant to the CS program.

As an alternative to MATH 440, you may take any *one* of MATH 305 (Differential Equations, spring only), MATH 365 (Complex Analysis, spring only), MATH 400 (History of Mathematics, fall only), MATH 420 (Numerical Analysis, spring only), STAT 441 (Probability and Statistics, spring only), but of these options, MATH 440 is the class that is most beneficial to the CS program.

Suggested mathematics course sequence

Freshman year Fall: MATH 115, Spring: MATH 202
Sophomore year Fall: MATH 260, Spring: MATH 250 and MATH 440
Junior year Fall: MATH 413

Once you declare a mathematics minor, your academic advisor will be happy to help you build a four-year plan for earning a minor in mathematics that fits with your other classes. If you start on a path toward earning a math minor, but latter decide to earn a Mathematics Bachelor of Science, all the mathematics and statistics classes listed here will count toward the Bachelor of Science degree.

*This plan is up to date for the 2020-2021 catalog. Also, the designation of a fall or spring class is anticipated, but it is subject to change.