# STATISTICS CONCENTRATION

## Mathematics, Bachelor of Science with a Concentration in Statistics Requirements

| Code | Title | Credits |
|---|---|---|
| **GENERAL EDUCATION REQUIREMENTS - 46 Hours Required** | | |
| Minimum of "C-"required | | |
| **Fundamental Academic Skills** | | **15** |
| ENGL 1150 | ENGLISH COMPOSITION I | |
| ENGL 1160 | ENGLISH COMPOSITION II | |
| Writing in the Discipline Course | | |
| CMST 1110 | PUBLIC SPEAKING FUNDS | |
| or CMST 2120 | ARGUMENTATION AND DEBATE | |
| MATH 1120 | INTRODUCTION TO MATHEMATICAL AND COMPUTATIONAL THINKING | |
| or MATH 1100 | DATA LITERACY AND VISUALIZATION | |
| or MATH 1130 | QUANTITATIVE LITERACY | |
| or MATH 1140 | QUANTITATIVE REASONING FOR HEALTHCARE PROFESSIONALS | |
| or MATH 1300 | COLLEGE ALGEBRA WITH SUPPORT | |
| or STAT 1100 | DATA LITERACY AND VISUALIZATION | |
| or STAT 1530 | ELEMENTARY STATISTICS | |
| **Distribution Requirements** | | **31** |
| Natural Science - From two disciplines and at least one lab - 7 hrs | | |
| Social Science - From two disciplines - 9 hrs | | |
| Humanities and Fine Arts - From two disciplines- 9 hrs | | |
| Global Diversity - 3 hrs | | |
| US Diversity - 3 hrs | | |
| **MAJOR REQUIREMENTS** | | |
| **Course will satisfy UNO's General Education requirement | | |
| ^Course requires pre-requisite(s) | | |
| **Mathematics Major with a Concentration in Statistics - 46 Hours Required** | | |
| **Required Coursework** | | **25** |
| MATH 1950 | CALCULUS I (^) | |
| MATH 1960 | CALCULUS II | |
| MATH 1970 | CALCULUS III | |
| MATH 2050 | APPLIED LINEAR ALGEBRA | |
| MATH 2230 | INTRODUCTION TO ABSTRACT MATH | |
| MATH 2350 | DIFFERENTIAL EQUATIONS | |
| MATH 3230 | INTRODUCTION TO ANALYSIS | |
| **Select one of the following** | | **3** |
| CIST 1400 | INTRODUCTION TO COMPUTER SCIENCE I | |
| MATH 2200 | MATHEMATICAL COMPUTING I (Recommended for this concentration) | |
| MATH 3250 | INTRODUCTION TO NUMERICAL METHODS | |
| **Select all of the following Statistics Concentration courses** | | **9** |
| MATH 3200 | MATHEMATICAL COMPUTING II | |

| Code | Title | Credits |
|---|---|---|
| MATH 4740 | INTRODUCTION TO PROBABILITY AND STATISTICS I | |
| MATH 4750 | INTRODUCTION TO PROBABILITY AND STATISTICS II | |
| **Select at least two the following Statistics Concentration courses** | | **6-9** |
| STAT 4420 | EXPLORATORY DATA VISUALIZATION AND QUANTIFICATION | |
| STAT 4430 | LINEAR MODELS | |
| STAT 4440 | TIME SERIES ANALYSIS | |
| **Select up to one of the following Statistics Concentration courses** | | **0-3** |
| MATH 3100 | APPLIED COMBINATORICS | |
| or CSCI 3100 | APPLIED COMBINATORICS | |
| MATH 4310 | PROBABILISTIC OPERATIONS RESEARCH MODELS | |
| or CSCI 4310 | PROBABILISTIC OPERATIONS RESEARCH MODELS | |
| MATH 4450 | INTRODUCTION TO MACHINE LEARNING AND DATA MINING | |
| or STAT 4450 | INTRODUCTION TO MACHINE LEARNING AND DATA MINING | |
| MATH 4900 | INDEPENDENT STUDIES | |
| STAT 4410 | INTRODUCTION TO DATA SCIENCE | |
| **College Breadth (choose one option)** | | **15-30+** |
| Option 1: Complete any UNO minor or undergraduate certificate - 15+ hours | | |
| Option 2: Additional General Education Requirements - 19+ hours | | |
| Additional quantitative literacy - 3 hours | | |
| Additional Social Science Gen. Ed. from 3rd Discipline - 3 hours | | |
| Additional Humanities Gen. Ed. from 3rd Discipline - 3 hours | | |
| HIST 1000 and HIST 1010 - 6 hours | | |
| Additional Nat. and Physical Science w/ Lab - 4-5 hours | | |
| Option 3: CAS comprehensive major (50+ hours) OR any second UNO major (30+ hours) | | |
| **Bachelor of Science Cognate Requirement** | | **15** |

The Bachelor of Science Degree requires at least 15 hours of related Cognate coursework that must be approved by the Mathematics Academic Advisor/Coordinator. Students can also choose a UNO Minor to satisfy their cognate requirement; however, this Cognate minor cannot double-count as the Option 1 minor for the College of Arts & Sciences College Breadth Requirement. A Computer Science Minor cannot satisfy the Cognate requirement for Mathematics. No more than 6 credits of cognate coursework may double-count within the general education requirements.

| | | |
|---|---|---|
| **ELECTIVES** | | |
| Elective hours as required to reach a total of 120 hours | | |

## Mathematics, Bachelor of Science with a Concentration in Statistics Four Year Plan

**Freshman**

| Fall | | Credits |
|---|---|---|
| CMST 1110 | PUBLIC SPEAKING FUNDS | 3 |
| or CMST 2120 | or ARGUMENTATION AND DEBATE | |
| ENGL 1150 | ENGLISH COMPOSITION I (*) | 3 |
| MATH 1950 | CALCULUS I (**) | 5 |

| | | |
|---|---|---|
| Humanities/Fine Arts Course with Global Diversity | | 3 |
| *ENGL 1150: Requires placement. | | |
| **MATH 1950: Requires Math Placement Exam or ACT or SAT scores. | | |
| **Credits** | | **14** |

**Spring**

| | | |
|---|---|---|
| ENGL 1160 | ENGLISH COMPOSITION II | 3 |
| MATH 1960 | CALCULUS II | 4 |
| Humanities/Fine Arts Course | | 3 |
| Natural/Physical Science with Lab | | 4 |
| Elective | | 1 |
| **Credits** | | **15** |

**Sophomore**

**Fall**

| | | |
|---|---|---|
| MATH 1970 | CALCULUS III | 4 |
| MATH 2050 | APPLIED LINEAR ALGEBRA (*) | 3 |
| Social Science | | 3 |
| Social Science | | 3 |
| Humanities/Fine Arts & US Diversity Course** | | 3 |
| *MATH 2050: Requires MATH 1960 | | |
| **HFA Must be in a 2nd discipline | | |
| **Credits** | | **16** |

**Spring**

| | | |
|---|---|---|
| MATH 2230 | INTRODUCTION TO ABSTRACT MATH (*) | 3 |
| MATH 2350 | DIFFERENTIAL EQUATIONS (**) | 3 |
| Social Science*** | | 3 |
| Additional Humanities/Fine Arts Course for A&S or Minor/2nd Major Course^ | | 3 |
| Advanced Writing Requirement# | | 3 |
| *MATH 2230: Requires MATH 1960 | | |
| **MATH 2350: Requires MATH 1960. MATH 2050 Recommended but not required. | | |
| ***SS must be in a 2nd discipline | | |
| ^A&S College Requirement Options. Additional HFA must be in a 3rd discipline. | | |
| #Advanced Writing Requirement can be: CIST 3000 Advanced Composition for IS&T, ENGL 3050 Writing for the Workplace, ENGL 3980 Technical Writing Across the Discipline, or PHIL 3000 Philosophy Writing Seminar. | | |
| **Credits** | | **15** |

**Junior**

**Fall**

| | | |
|---|---|---|
| MATH 2200 | MATHEMATICAL COMPUTING I | 3 |
| MATH 3230 | INTRODUCTION TO ANALYSIS (*) | 3 |
| MATH 4740 | INTRODUCTION TO PROBABILITY AND STATISTICS I (**) | 3 |
| Natural/Physical Science*** | | 3 |
| Additional Social Science for A&S or Minor/2nd Major Course# | | 3 |
| *MATH 3230: Requires MATH 2230 | | |
| **MATH 4740: Requires MATH 2230 | | |
| ^N&PS Course must be in a 2nd discipline | | |
| #A&S College Requirement Options. Additional SS must be in a 3nd discipline | | |
| **Credits** | | **15** |

**Spring**

| | | |
|---|---|---|
| HIST 1000 or Minor/2nd Major Course* | | 3 |
| MATH 3200 | MATHEMATICAL COMPUTING II | 3 |

| | | |
|---|---|---|
| MATH 4750 | INTRODUCTION TO PROBABILITY AND STATISTICS II (**) | 3 |
| Cognate | | 3 |
| Cognate | | 3 |
| *A&S College Requirement Options | | |
| **MATH 4750: Requires MATH 4740 | | |
| **Credits** | | **15** |

**Senior**

**Fall**

| | | |
|---|---|---|
| HIST 1010 or Minor/2nd Major Course* | | 3 |
| Group A Elective or Cognate** | | 3 |
| Group B Elective or Cognate*** | | 3 |
| Cognate | | 3 |
| Elective or Minor/Double Major Course^ | | 3 |
| *A&S College Requirement Options | | |
| **Must take 3 Stat Electives with at least 2 from Group A. This semester Group A options: STAT 4430 (F) requires MATH 4750. | | |
| ***Must take 3 Stat Electives with at least 2 from Group A. This semester Group B options: STAT 4410 (F) requires MATH 4740; MATH/CSCI 3100 (F, S) requires MATH 2230; MATH 4900 Independent Study. | | |
| ^Students need at least 120 credits and a minimum of 27 upper level credits throughout the entire degree, with at least 18 credits of upper level coursework taken within the major/concentration. May need to select 3000/4000 level free electives and/or cognate courses to reach the 27 credit minimum. | | |
| **Credits** | | **15** |

**Spring**

| | | |
|---|---|---|
| Group A Elective or Cognate* | | 3 |
| Group B Elective or Cognate** | | 3 |
| Cognate | | 3 |
| Elective at 3000-4000 Level/Minor/Double Major Course*** | | 3 |
| Elective at 3000-4000 Level/Minor/Double Major Course*** | | 3 |
| *Must take 3 Stat Electives with at least 2 from Group A. This semester Group A options: STAT 4420 (S) requires MATH 4750 & CSCI 1620 or MATH 3200; STAT 4440 (S) requires MATH 4750 & CSCI 1620 or MATH 3200. | | |
| **Must take 3 Stat Electives with at least 2 from Group A. This semester Group B options: MATH/CSCI 3100 (F, S) requires MATH 2230; MATH/CSCI 4310 (S) requires MATH 3050 and 4750; MATH/STAT 4450 (S) requires MATH 4740; MATH 4900 Independent Study. | | |
| ***Students need at least 120 credits and a minimum of 27 upper level credits throughout the entire degree, with at least 18 credits of upper level coursework taken within the major/concentration. May need to select 3000/4000 level free electives and/or cognate courses to reach the 27 credit minimum. | | |
| **Credits** | | **15** |
| **Total Credits** | | **120** |

This roadmap is a suggested plan of study and does not replace meeting with an advisor. Please note that students may need to adjust the actual sequence of courses based on course availability. Please consult an advisor in your major program for further guidance.

This plan is not a contract and curriculum is subject to change

**Additional Information About this Plan:**
**University Degree Requirements:** The minimum number of hours for a UNO undergraduate degree is 120 credit hours. Please review the requirements for your specific program to determine all requirements for the program. In order to graduate on-time (four years for an undergraduate degree), you need to take 30 hours each year.

**Placement Exams:** For Math, English, Foreign Language, a placement exam may be required. More information on these exams can be found at https://www.unomaha.edu/enrollment-management/testing-center/placement-exams/information.php

**Transfer credit or placement exam scores may change suggested plan of study