Title

Credits

## **Mathematics & Statistics Curriculum Guides**

The following are only examples of four-year Mathematics degree programs and are subject to change without notice. Students should consult a Mathematics program advisor to ensure that they have the most accurate and up-to-date information available about a particular four-year degree option.

- Mathematics Emphasis
- · Statistics Emphasis

## **Mathematics**

Course

An example: Four year plan for **Mathematics Major with Mathematics Emphasis** 120 credits necessary to graduate.

Plan is a representation and categories of classes can be switched. Check with your advisor.

| Feathers           Machine Saminar         Calcular and Analysic (accessed)         4 (accessed)         2 (accessed)         4 (accessed)         2 (accessed)         3 (accessed)         4 (accessed)  | Course     | Title                   | Credits |
|---|------------|-------------------------|---------|
| MATH 2021         Calcalus and Analysic Generial Ed         Secretal Ed         Se  | Freshman   |                         |         |
| Prior Year Seminar   3   3   3   3   3   3   3   3   3  | Fall       |                         |         |
| First Versilaminal         3           General Ecl         3           Selective         Tordits         16           Spring         1           MATH 2003         Calculus and Analysis         4           General Ecl         Intenductory Statistics         4           General Ecl         3         3           Bickby         7         3         3           General Ecl         5         3   | MATH 202   |                         | 4       |
| General Ed         3           General Ed         3           Euchrye         3           Remail Ed         3           Euchrye         6           Nacht         6           MATH 203         Cardits and Analystic of General Ed         4           MATH 204         introductory Statistics         4           General Ed         1         3           General Ed         5         4           General Ed         5         4           General Ed         5         4           General Ed         1         3           General Ed         7         3           General Ed         7         3           MATH 314         Proofs in Number Theory and Topology         3           Marker         3         3           Beliable         7         4           General Ed         5         4           Beliable         7         6           Beliable         7   |            | Geometry I              |         |
| General Ed         Section         condita         16           Spring         Calculus and Analytic Geometry II         4           MATH 200         Indicatory Statistics         4           General Ed         5         3           Bective         6         3         3           Bective         7         3         3           Bective         7         3         7         3  |            |                         |         |
| Electric Spring         Certain and natural to Genome y II         An Th 1203         Certain and natural to Genome y II         An Th 2000         Introductory Statistics         4         4         Ceneral Ed         Go come y II II         An Th 2001         3   | General Ed |                         |         |
| Spring         Cedialus and Analytic Geometry II         4           MATH 200         Introductory Statistics         4           General Ed         3         3           General Ed         3         3           Bickeitve         5         3           Credits         17           Sophomore           Tell         Multivariate Calculus         4           General Ed         5         3           General Ed         5         3           General Ed         5         3           Spring         2         3           Spring         2         3           Spring         2         3           General Ed         7         7         3           Spring         3   | General Ed |                         | 3       |
| Spring         Calculus and Analytic Geomery II         4           MATH 2020         Calculus and Analytic Geomery II         4           Mach 2021         Introductory Statistics         4           General Ed         Credits         17           Spring           MATH 209         Multivariate Calculus         4           General Ed         Todatis         3           General Ed         2         3           General Ed         5         3           Spring         2         3           MATH 304         Profis in Number Theory and and Topology         3           Spring         3         3           Blackby         5         7         3           General Ed         5         3         3         3           Spring         3   | Elective   |                         | 3       |
| MATH 203         Gaustus and Analytic Goorder         4           MATH 260         Introductory Statesics         4           General Ed         3         3           General Ed         5         3           Betker         6         6         6         7           Betker         6         76         7         7           Spokene         8         7         8         7         8         4         4         8         6         6         6         7         6         7         6         7         6         7         6         7  |            | Credits                 | 16      |
| MATH 260   Geometry II of Introductory Statistics   MATH 260   Interview Statistics | Spring     |                         |         |
| MATH 260         Introductory Statistics         4           General Ed         3           General Ed         3           Elective         Credits         17           Sphomore           Foll           MATH 209         Multivariate Calculus         4           General Ed         Cedits         3           Spring           MATH 314         Cedits         3           Spring           MATH 314         Cedits         3           Spring         3           Elective         Cedits         1         3           Elective         5         1         3         2         2         3         3         2         2         3         2         4         3         2         4         3         4         4         4         4         4         4         4   | MATH 203   | Calculus and Analytic   | 4       |
| General Ed         3           General Ed         3           Elective         7           Sophomore           Fall           MATH 208         Muttivariate Calculus         4           General Ed         3           Elective         6         3           Elective         7         4           MATH 314         Proofs in Number Theory and Topology         3           Spring         3         3           Elective         7         3           MATH 305         2         4           MATH 326         2         4           Elective         1         4           Elective         1         4           Elective         2         4           Elective         1         4           Elective         1         4           Elective         1         4           Elective   |            | Geometry II             |         |
| General Ed         13           Elective         Credits         17           Sophomore           Fall         Will variate Calculus         4           A MATH 208         Multivariate Calculus         4           6 enoral Ed         5         6           1 Sective         7 credits         13           8 product         7 credits         13           8 pecture         7 credits         13           8 pecture         3         14           9 pecture         3         14           1  | MATH 260   | Introductory Statistics | 4       |
| Elective         Credits         17           Sophomore           Fall           MATH 2096         Multivariate Calculus         4           General Ed         3         3           General Ed         10         3           Elective         Credits         13           Spring         Proofs in Number Theory and Topology         3           Elective         3         3           Elective         4         3           Elective         5         3           Elective         7         3           Elective         5         3           Mark         4         4           Mark         4         4           Junior         1         5           Fall         4         4           MATH 305         Ordinary Differential Equations         6           MATH 326         A (2)         4           General Ed         5         4           Elective         1         5           MATH 328         A (2)         4           MATH 328         A (2)         4           MATH 328         A (3)   | General Ed |                         | 3       |
| Sophomore         Credits         17           Fall           MATH 209         Multivariate Calculus         4           General Ed         3         3           Specific         2         3           Spring         Credits         13           MATH 314         Proofs in Number Theory and Topology         3           Secretal Ed         5         3           Secretal Ed         7         4           MATH 305         Credits         15           MATH 305         Credits         4           MATH 320         Linear Algebra and Matrix Theory         3           Spring         5         4           MATH 328         Abstract Algebra         3           MATH 328         Applied Mathematical Oplinitization         3   | General Ed |                         | 3       |
| Sphomore           Fall         Additional Calculus         4           MATH 209         Multivariate Calculus         4           Generial Ed         :  | Elective   |                         | 3       |
| Fall         Matt 209         Multivariat Calculus         4           General Ed         3         3           General Ed         5         3           Elective         Credits         13           Spring         Totalis         13           MATH 314         Proofs in Number Theory and Topology         3           Blective         3         3           Blective         5         3           Blective         6         7         3           Fall         7         15           MATH 305         Credits         14           MATH 326         Credits         14           Blective         5         3           Blective         5         4           MATH 326         Credits         14           MATH 327         Applied Mathematical Optimization         3  |            | Credits                 | 17      |
| MATH 209         Multivariate Calculus         4           General Ed         3           General Ed  | Sophomore  |                         |         |
| MATH 209         Multivariate Calculus         4           General Ed         3           General Ed  | Fall       |                         |         |
| General Ed         13           Elective         Credits         13           Spring           MATH 314         Proofs in Number Theory and Topology         3           General Ed         3         3           Elective         3         3           Elective         3         3           Elective         5         3           Elective         6         15           Tunior         3         15           Junior         Credits         15           Junior         4         6         15         3           Junior         5         15         4  |            | Multivariate Calculus   | 4       |
| General Ed         13           Elective         Credits         13           Spring           MATH 314         Proofs in Number Theory and Topology         3           General Ed         3         3           Elective         3         3           Elective         3         3           Elective         5         3           Elective         6         15           Tunior         3         15           Junior         Credits         15           Junior         4         6         15         3           Junior         5         15         4  | General Ed |                         | 3       |
| Elective         Credits         13           Spring         MATH 314         Proofs in Number Theory and Topology         3           General Ed         3         3           Elective         3         3           Elective         3         3           Elective         3         3           Elective         5         3           Junior         2         4           Fall         4         4         4           MATH 305         Ordinary Differential Equations         4         4           MATH 320         Linear Algebra and Matrix Theory         4         4           General Ed         Elective         3         3           Elective         5         3         3           MATH 320         Astract Algebra and Matrix Theory         4         4           Spring         1         4         4         4           MATH 328         Abstract Algebra         3         3           MATH 325         Applied Mathematical Optimization         3         4  | General Ed |                         |         |
| Spring         ATH 314         Proofs in Number Theory and Topology         3           General Ed         3         3           Elective         3         3           Elective         3         3           Elective         3         3           Elective         7         3           Elective         7         3           Tunior         7         4           Fall         4         4           MATH 305         Ordinary Differential Equations         4           MATH 320         Linear Algebra and Matrix Theory         4           General Ed         1         3           Elective         3         3           MATH 325         Abstract Algebra         3           MATH 328         Applied Mathematical Optimization         3   |            |                         |         |
| Spring         Proofs in Number Theory and Topology         3           General Ed         3           Elective         3           Elective         7           Elective         6           Total Ed         7           MATH 305         Ordinary Differential Equations         4           Equations         1           MATH 320         Inear Algebra and Autrix Theory         4           Elective         5           Elective         7           Spring         1           MATH 328         Abstract Algebra         3           MATH 329         Applied Mathematical Optimization         3  |            | Credits                 |         |
| MATH 314         Proofs in Number Theory and Topology         3           General Ed         3           Elective         3           Elective         3           Elective         6           Lictive         7           Verdits         15           Junior         7           Fall         7           MATH 305         Ordinary Differential Equations         4           MATH 320         Linear Algebra and Matrix Theory         4           General Ed         1         3           Elective         5         3           Flocitye         7         4           MATH 326         Abstract Algebra         3           MATH 328         Abstract Algebra         3           MATH 355         Applied Mathematical Optimization         3   | Spring     | Side                    |         |
| General Ed         3           Elective         3           Elective         3           Elective         7         3           Elective         Credits         15           Junior           Fall         Credits         15           MATH 305         Ordinary Differential Equations         4           Equations         4           Equations         4           MATH 320         Linear Algebra and Matrix Theory         3           General Ed         3         3           Elective         3         3           Spring         Anti 35         Applied Mathematical Optimization         3  |            | Proofs in Number Theory | 3       |
| Elective         3           Elective         3           Elective         Credits         15           Junior           Fall           MATH 305         Ordinary Differential Equations         4           MATH 320         Linear Algebra and Matrix Theory         4           General Ed         3           Elective         3           Elective         Credits         14           Spring           MATH 328         Abstract Algebra         3           MATH 355         Applied Mathematical Optimization         3  |            |                         |         |
| Elective         3           Elective         Credits         15           Junior           Fall           MATH 305         Ordinary Differential Equations         4           MATH 320         Linear Algebra and Matrix Theory         4           General Ed         To redits         3           Elective         Credits         14           Spring           MATH 328         Abstract Algebra         3           MATH 355         Applied Mathematical Optimization         3  | General Ed |                         | 3       |
| Elective         Credits         15           Junior           Fall           MATH 305         Ordinary Differential Equations         4           MATH 320         Linear Algebra and Matrix Theory         4           General Ed         3           Elective         3           Elective         Credits         14           Spring           MATH 328         Abstract Algebra         3           MATH 355         Applied Mathematical Optimization         3  | Elective   |                         | 3       |
| Credits         15           Junior           Fall         MATH 305         Ordinary Differential Equations         4         Equations         4         MATH 320         Linear Algebra and Matrix Theory         4         MATH 320         Credits         3         Elective         3         Credits         14         Spring           MATH 328         Abstract Algebra         3         MATH 355         Applied Mathematical Optimization         3         Optimization         ***********************************   | Elective   |                         | 3       |
| Credits         15           Junior           Fall         MATH 305         Ordinary Differential Equations         4         Equations         4         MATH 320         Linear Algebra and Matrix Theory         4         MATH 320         Credits         3         Elective         3         Credits         14         Spring           MATH 328         Abstract Algebra         3         MATH 355         Applied Mathematical Optimization         3         Optimization         ***********************************   | Elective   |                         | 3       |
| Junior           Fall           MATH 305         Ordinary Differential Equations         4           MATH 320         Linear Algebra and Matrix Theory         4           General Ed         3           Elective         7           Spring         Abstract Algebra         3           MATH 328         Applied Mathematical Optimization         3           MATH 355         Applied Mathematical Optimization         3  |            | Credits                 |         |
| Fall         MATH 305         Ordinary Differential Equations         4 Equations           MATH 320         Linear Algebra and Matrix Theory         4           General Ed         3         3           Elective         7         3           Spring         Abstract Algebra         3           MATH 328         Applied Mathematical Optimization         3  | Junior     |                         |         |
| MATH 305       Ordinary Differential Equations       4 Equations         MATH 320       Linear Algebra and Matrix Theory       4 Matrix Theory         General Ed       3         Elective       3         Credits       14         Spring         MATH 328       Abstract Algebra       3         MATH 355       Applied Mathematical Optimization       3   |            |                         |         |
| MATH 320         Equations           General Ed         3           Elective         3           Spring         Credits         14           MATH 328         Abstract Algebra         3           MATH 355         Applied Mathematical Optimization         3   |            | Ordinary Differential   | 4       |
| MATH 320       Linear Algebra and Matrix Theory       4         General Ed       3         Elective       3         Credits       14         Spring         MATH 328       Abstract Algebra       3         MATH 355       Applied Mathematical Optimization       3  |            |                         | ·       |
| Matrix Theory           General Ed         3           Elective         5           Spring         Abstract Algebra         3           MATH 328         Applied Mathematical Optimization         3  | MATH 320   |                         | 4       |
| Elective         3           Spring         Abstract Algebra         3           MATH 328         Applied Mathematical Optimization         3   |            |                         |         |
| Spring         Abstract Algebra         3           MATH 328         Applied Mathematical Optimization         3  | General Ed |                         | 3       |
| Spring         Abstract Algebra         3           MATH 328         Applied Mathematical Optimization         3  | Elective   |                         | 3       |
| Spring         Abstract Algebra         3           MATH 328         Applied Mathematical Optimization         3  |            | Credits                 | 14      |
| MATH 328  MATH 355  Applied Mathematical 3 Optimization   | Spring     |                         |         |
| MATH 355 Applied Mathematical 3 Optimization  |            | Abstract Algebra        | 3       |
| Optimization  |            |                         |         |
|   |            |                         |         |
|   | General Ed |                         | 3       |

| Elective Elective         |                         | 3   |
|---------------------------|-------------------------|-----|
| Liective                  | Credits                 | 15  |
| Senior                    | Credits                 | 13  |
| Fall                      |                         |     |
| MATH 323                  | Analysis                | 4   |
| Elective                  | 7 ii diyoto             | 3   |
| Elective                  |                         | 3   |
| Elective                  |                         | 3   |
| Elective                  |                         | 3   |
|                           | Credits                 | 16  |
| Spring                    |                         |     |
| MATH 385                  | Foundations of Geometry | 3   |
| Math Upper Level Elective |                         | 3   |
| Elective                  |                         | 3   |
| Elective                  |                         | 3   |
| Elective                  |                         | 3   |
|                           | Credits                 | 15  |
|                           | Total Credits           | 121 |

## **Statistics**

2

An example: Four year plan for Mathematics Major with Statistics Emphasis

120 credits necessary to graduate.

Plan is a representation and categories of classes can be switched. Check with your advisor.

| Course             | Title                                | Credits |
|--------------------|--------------------------------------|---------|
| Freshman           |                                      |         |
| Fall               |                                      |         |
| MATH 202           | Calculus and Analytic<br>Geometry I  | 4       |
| First Year Seminar |                                      | 3       |
| General Ed         |                                      | 3       |
| General Ed         |                                      | 3       |
| General Ed         |                                      | 2       |
|                    | Credits                              | 15      |
| Spring             |                                      |         |
| MATH 203           | Calculus and Analytic<br>Geometry II | 4       |
| MATH 260           | Introductory Statistics              | 4       |
| General Ed         |                                      | 3       |
| General Ed         |                                      | 3       |
| Elective           |                                      | 2       |
|                    | Credits                              | 16      |
| Sophomore          |                                      |         |
| Fall               |                                      |         |
| MATH 209           | Multivariate Calculus                | 4       |
| MATH 320           | Linear Algebra and<br>Matrix Theory  | 4       |
| General Ed         |                                      | 3       |
| General Ed         |                                      | 3       |
| Spring             | Credits                              | 14      |
| MATH 314           | Proofs in Number Theory and Topology | 3       |
| General Ed         |                                      | 3       |
| Elective           |                                      | 3       |
| Elective           |                                      | 3       |
| Elective           |                                      | 3       |
|                    | Credits                              | 15      |
| Junior             |                                      |         |
| Fall               |                                      |         |
| MATH 323           | Analysis                             | 4       |
|                    |                                      |         |

| MATH 360   | Theory of Probability (if fall even; take a 3-credit elective otherwise)                           | 3   |
|--|--|-----|
| General Ed   |  | 3   |
| General Ed   |  | 3   |
| Elective   |  | 3   |
|  | Credits  | 16  |
| Spring   |  |     |
| MATH 355   | Applied Mathematical Optimization  | 3   |
| MATH 361   | Mathematical Statistics<br>(if spring odd; take a 3-<br>credit elective otherwise)                 | 3   |
| General Ed   |  | 3   |
| Elective   |  | 3   |
| Elective   |  | 3   |
|  | Credits  | 15  |
| Senior   |  |     |
| Fall   |  |     |
| MATH 329   | Applied Regression Analysis  | 4   |
| MATH 360   | Theory of Probability (if fall even and not already taken; take a 3-credit elective otherwise)     | 3   |
| Elective   |  | 3   |
| Elective   |  | 3   |
| Elective   |  | 3   |
|  | Credits  | 16  |
| Spring   |  |     |
| MATH 361   | Mathematical Statistics (if spring odd and not already taken; take a 3- credit elective otherwise) | 3   |
| Math Upper-level Elective (MATH 430: Design of Experiments or MATH 431: Multivariate Statistical Analysis) |  | 4   |
| Elective   |  | 3   |
| Elective   |  | 3   |
|  | Credits  | 13  |
|  | Total Credits  | 120 |