CURRICULUM GUIDE
3+2 in Data Science and Statistics, B.S. (Discrete Mathematics Combination) and Applied Mathematics, M.A. (All Concentrations)
2023-2024
Website: math.eku.edu
521 Lancaster Ave.
312 Wallace Bldg.
Richmond, KY 40475

Email Contact: mathstat@eku.edu
The schedule below is just ONE EXAMPLE how you can arrange your class schedule. Free electives may vary, depending on your choice of classes. It is important to check with your advisor for specific changes that may need to be made to personalize your schedule.


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## M.A. In Applied Mathematics: Secondary Mathematics Concentration

| Course Number | Course Name |
| :---: | :---: |
| M.A. APPLIED MATHEMATICS REQUIREMENTS (30) |  |
| NINE (9) hours from MAT 720 or STA 720, MAT 865, MAE 705 or STA 775 are counted in the undergraduate program. |  |
| $\Omega$ CORE COURSE REQUIREMENTS (12) |  |
| MAT 720 or <br> STA 720 <br> MAT 865 <br> MAT 866 <br> MAE 704 or STA 775 | Mathematical Statistics I (3) (Fall only) <br> Mathematical Statistics I (3) <br> Applied Linear Algebra (3) <br> Combinatorial Optimization (3) <br> Technology for Teaching and Research (3) <br> Statistical Methods using SAS (3) |
| SECONDARY MATHEMATICS CONCENTRATION REQUIREMENTS (15) |  |
| MAT 735 | Principles of Geometry (3) |
| PLUS SIX (6) HOURS selected from: |  |
| MAE 750 | Teaching Mathematics in the Secondary School (3) (Fall only) |
| MAE 843 | Mathematics Intervention Strategies (3) |
| MAE 850 | Trends and Materials in the Teaching of Mathematics (3) |
| MAE 870 | Hierarchical Linear Modeling in Educational Research (3) |
| MAE 872 | Mathematics in the Curriculum (3) |
| STA 800 | Applied Statistical Inference (3) |
| PLUS SIX (6) HOURS advisor-approved electives selected from 700- or 800level courses with DSC, MAE, MAT, STA, or CSC prefixes (Electives) |  |
| CAPSTONE (3) |  |
| MAT 898 | Applied Mathematics Capstone (3) | concentration requirements.

## M.A. In Applied Mathematics: Data Science Concentration

| Course Number | Course Name |
| :---: | :---: |
| M.A. APPLIED MATHEMATICS REQUIREMENTS (30) |  |
| NINE (9) hours from MAT 720 or STA 720, MAT 865, MAE 705 or STA 775 are counted in the undergraduate program. |  |
| $\Omega$ CORE COURSE REQUIREMENTS (12) |  |
| MAT 720 or <br> STA 720 <br> MAT 865 <br> MAT 866 <br> MAE 704 or STA 775 | Mathematical Statistics I (3) (Fall only) <br> Mathematical Statistics I (3) <br> Applied Linear Algebra (3) <br> Combinatorial Optimization (3) <br> Technology for Teaching and Research (3) <br> Statistical Methods using SAS (3) |
| DATA SCIENCE CONCENTRATION REQUIREMENTS (15) |  |
| $\begin{array}{r} \text { DSC } 780 \text { or } \\ \text { STA } 780 \end{array}$ | R and Introductory Data Mining (3) R and Introductory Data Mining (3) |
| PLUS SIX (6) HOURS selected from: |  |
| MAE 750 | Teaching Mathematics in the Secondary School (3) (Fall only) |
| MAE 843 | Mathematics Intervention Strategies (3) |
| MAE 850 | Trends and Materials in the Teaching of Mathematics (3) |
| MAE 870 | Hierarchical Linear Modeling in Educational Research (3) |
| MAE 872 | Mathematics in the Curriculum (3) |
| STA 800 | Applied Statistical Inference (3) |
| PLUS SIX (6) HOURS advisor-approved electives selected from 700- or 800level courses with DSC, MAE, MAT, STA, or CSC prefixes (Electives) |  |
| CAPSTONE (3) |  |
| MAT 898 | Applied Mathematics Capstone (3) |

[^1]
## M.A. In Applied Mathematics: Applied Mathematics and Statistics Concentration

| Course <br> Number | Course Name |
| :---: | :---: |
| M.A. APPLIED MATHEMATICS REQUIREMENTS (30) |  |
| NINE (9) hours from MAT 720 or STA 720, MAT 865, MAE 705 or STA 775 are counted in the undergraduate program. |  |
| $\Omega$ CORE COURSE REQUIREMENTS (12) |  |
| MAT 720 or <br> STA 720 <br> MAT 865 <br> MAT 866 <br> MAE 704 or STA 775 | Mathematical Statistics I (3) (Fall only) <br> Mathematical Statistics I (3) <br> Applied Linear Algebra (3) <br> Combinatorial Optimization (3) <br> Technology for Teaching and Research (3) <br> Statistical Methods using SAS (3) |
| APPLIED MATHEMATICS AND STATISTICS CONCENTRATION REQUIREMENTS (15) |  |
| NINE (9) HOURS SELECTED FROM: |  |
| DSC 780 | R and Introductory Data Mining (3) |
| MAT 706 | Number Theory (3) |
| MAT 727 | Cryptology (3) |
| MAT 740 | Applications of Partial Differential Equations (3) |
| MAT 750 | Applications of Complex Analysis (3) |
| MAT 755 | Graph Theory (3) |
| MAT 765 | Mathematics of Structural Bioinformatics (3) |
| MAT 777 | Introduction to Algebraic Coding Theory (3) |
| MAT 853 | Ordinary Differential Equations (3) |
| MAT 856 | Applied Mathematics (3) |
| MAT 871 | Numerical Analysis (3) |
| MAT 880 | Seminar in:____ (1-3) |
| STA 721 | Mathematical Statistics II (3) |
| STA 770 | Quality Control and Reliability (3) |
| STA 775 | Statistical Methods Using SAS (3) |
| STA 780 | R and Introductory Data Mining (3) |
| STA 785 | Experimental Design (3) |
| STA 835 | Linear Models (3) |
| STA 840 | Applied Multivariate Statistical Analysis (3) |
| STA 880 | Seminar in:____ (1-3) |
| PLUS SIX (6) HOURS advisor-approved electives selected from 700- or 800 -level courses with DSC, MAE, MAT, STA, or CSC prefixes (Electives) |  |
| CAPSTONE (3) |  |
| MAT 898 | Applied Mathematics Capstone (3) |

$\Omega$ No course may be counted under both core requirements and concentration requirements.


[^0]:    - M.A. IN APPLIED MATHEMATICS REQUIREMENTS ON BACK

    Students must choose one concentration for the M.A. in Applied Mathematics.

[^1]:    No course may be counted und
    concentration requirements.

