DATA SCIENCE AND STATISTICS, BACHELOR OF SCIENCE (B.S.) & APPLIED MATHEMATICS, MASTER OF ARTS (M.A.) ACCELERATED 3+2 DUAL DEGREE PROGRAM

Students accepted to the 3+2 Accelerated Dual Degree Option are able to complete their BS degree and MS degree within 5 calendar years because of the accelerated curriculum; nine semester hours of graduate coursework will apply to both the undergraduate BS degree and the graduate MS degree. Only undergraduate students of proven academic ability will be considered for the program. Students should be aware that, in order to maintain their progress in the accelerated 3+2 program, careful coordination with their advisor is required. Depending upon undergraduate progress at the time of 3+2 admission, some summer school classes may be needed.

Admission Requirements for the 3+2 Program:

Students interested in this program must satisfy all the following conditions:

1. Have Junior or Senior standing

2. Have an overall grade point average (GPA) of at least 3.0 at the time of admission to the 3+2 program

3. Be approved by both the Department of Mathematics and Statistics and the Graduate School (see the 3+2 Enrollment Approval Form at http://gradschool.eku.edu/graduate-school-forms)

4. Maintain an overall undergraduate and graduate GPA of at least 3.0 to continue each semester with 3+2 coursework

5. Have an institutional undergraduate and graduate GPA of at least 3.0 to be allowed to move into graduate student status after earning the B.S. Data Science and Statistics degree.

Program Requirements

CIP Code: 27.0501

Students in the 3+2 Accelerated Dual Degree Option must complete the Data Science and Statistics (B.S.) program requirements listed below, with at least a 3.0 GPA, and must apply and be approved to graduate with that degree before being admitted as a graduate student and allowed to proceed to the M.A. in Applied Mathematics program. Nine credit hours of graduate coursework (MAT/STA 720, STA 775, and MAT 865) will be applicable to the undergraduate degree.

Upon successful completion of this program, the graduate will: (1) understand the applications and use of data science and in data science or statistics in everyday life; (2) be able to apply a wide variety of statistical techniques; (3) be able to analyze large, complex data sets; (4) use computer packages to perform statistical analyses; (5) be well qualified for employment in industry, government, and the actuarial profession; and (6) be prepared to pursue graduate work in data science or statistics.

Summary Checklist for General Education

Code	Title	Hours
Element 1		
A: Written Communication (http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-1/)		3
B: Written Communication (http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-1/)		3
C: Oral Communication (http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-1/)		3
Element 2		
Quantitative Reasoning (http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-2/)		3
Element 3		
A: Arts (http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-3/)		3
B: Humanities (http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-3/)		3
Element 4		
Natural Sciences (http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-4/)		6
Element 5		
A: Historical Science (http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-5/)		3
B: Social Behavioral Science (http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-5/)		3
Element 6		
Diversity of Perspectives Experiences (http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-6/)		6
Total Hours		**36**

Students are expected to complete Elements 1 and 2 within their first 60 hours of college credit.

Major

Only courses completed with a grade of at least a “C” will count toward the major requirements.

Code	Title	Hours
University Graduation Requirements		
General Education		36
Student Success Seminar		
SCO 100	Student Success Seminar	1
Upper division courses (42 hours distributed throughout Major/Supporting/Gen Ed/Free Electives categories)		
Major Requirements		
Core Courses		
MAT 239	Linear Algebra and Matrices	3

MAT 244	Calculus II	4
STA 270	Applied Statistics	4
STA 340	Applied Regression Analysis	3
STA 498W	Statistics Capstone	3
MAT 720	Mathematical Statistics I	3
or STA 720	Mathematical Statistics I	
STA 775	Statistics Methods Using SAS	3
MAT 865	Applied Linear Algebra	3
Choose from three hours of CSC, DSC, MAT, STA courses numbered 300 or above [3]		3
Major Electives		
Choose from one of the following combinations: [4]		6
Data Science:		
CSC 210 & CSC 581	Data Structures and Programming and Machine Learning	
Discrete Mathematics:		
MAT 306 & STA 470	Discrete Mathematics and Applied Probability	
Statistics:		
STA 521	Mathematical Statistics II [2]	
STA 585	Experimental Design	
Supporting Course Requirements		
Choose from one of the following:		3
CSC 170	Intro to Game Programming	
CSC 174	Introduction to Programming for Science & Engineering	
CSC 189	Computing Concepts and Programming	
CSC 190	Object- Oriented Programming I	
ENG 300	Introduction to Technical and Professional Writing	3
or ENG 300S	Intro to Tech/Prof Writing	
MAT 234	Calculus I (Element 2) [G,5]	4
Choose from one of the following:		0-3
PHI 130	Beginning Ethics (Element 3B) [G]	
PHI 130S	Beginning Ethics (Element 3B) [G]	
PHI 362	Technology and Values	
Domain Knowledge Component		
Choose two courses from one of the following categories:		6-7
Anthropology and Sociology:		
ANT 371	Primate Ecology & Sociality	
SOC 232	Social Statistics	
SOC 310	Population and Society	
SOC 395	Research Methods in Sociology	
Biology and Environmental Health Sciences:		
EHS 280 & EHS 370	One Health: Global Environmental Public Health and Environmental Disease Detectives: Epidemiology	
BIO 315 & BIO 533	Genetics and Bioinformatics: Principles and Applications [2]	
BIO 316 & BIO 532	Ecology and Conservation Biology [2]	
Computer Information Systems:		
CIS 335	Data Base Management [2]	
CIS 430	Business Data Mining	
or BUS 304	Essentials of MIS	
Computer Science and Informatics:		
CSC 310	Data Structures [2]	
CSC 313	Database Systems [2]	
INF 314	MS Office & Data Analysis [2]	
Government:		
POL 280	Research and Writing in Political Science [2]	
POL 400W	Capstone Course in Political Science [2]	
POL 440	Public Opinion & Voting Behavior	
Geosciences:		
GEO 351	Geoscience Data and Techniques [2]	
GEO 353	Geographic Information Systems	
GEO 453	Advanced GIS	
GEO 456	Remote Sensing	
GEO 458	Advanced Geographic Imagery	
Physics:		
PHY 315	Electrical Circuits [2]	
PHY 406	[2]	
PHY 460	Classical Mechanics [2]	
Psychology:		
PSY 240	Scientific Literacy in Psychology [2]	
PSY 315	Sensation and Perception	
or PSY 315L	Sensation and Perception Lab	
PSY 340W	Research Literacy in Psychology	
PSY 590	Tests and Measurements	
Advisor-Approved:		
Two advisor-approved courses from a department other than the Department of Mathematics and Statistics		
Free Electives		
Choose from 32-35 hours of free electives		32-35
Total Hours		**120**

1

Must include at least one of DSC 580 R and Introductory Data Mining or STA 575 Statistical Methods Using SAS or STA 580 R and Introductory Data Mining

2

Requires a pre-requisite course

3

Excluding: any 349 courses, MAT 303 Mathematical Models and Applications, STA 500 . STA 480 Seminar in ___ will count for only approved topics.

4

Courses will not count in both the Core and Major Electives categories.

5

Three hours count toward Element 2[G]

G

Course also satisfies a General Education element. Hours are included within the 36 hours in General Education.

Applied Mathematics, Master of Arts (M.A.)

See Applied Mathematics, Master of Arts with a Concentration in Applied Mathematics and Statistics (M.A.) (http://catalogs.eku.edu/graduate/science-technology-engineering-mathematics/mathematics-

statistics/applied-mathematics-concentration-statistics-ma/), Applied Mathematics, Master of Arts with a Concentration in Data Science (M.A.) (http://catalogs.eku.edu/graduate/science-technology-engineering-mathematics/mathematics-statistics/applied-mathematics-concentration-data-science-ma/), or Applied Mathematics, Master of Arts with a Concentration in Secondary Mathematics (M.A.) (http://catalogs.eku.edu/graduate/science-technology-engineering-mathematics/mathematics-statistics/applied-mathematics-concentration-secondary-ma/)