

## Elective Courses for Undergraduate Data Fluency

Course #	Course Name	Credits	Semester	Required Pre-Regs (C minimum grade needed)
<i>Data Fluency Certificate</i>				
ATMOS 3000	Professional Development in Atmospheric Science	2	Fall	
ATMOS 5340	Environmental Programming AND Statistics	3	Varies	MATH 1210
ATMOS 5400	The Climate System	3	Fall	Math 1050
ANTH 5234	Population Issues in Anthropology	3	Fall	MATH 1030 OR higher AND (ANTH 1010 OR ANTH 1020 OR ANTH 1030 OR ANTH 1050)
BCOR 2030	Frameworks for Business Problems II	3	Fall/Spring/Summer	BCOR 2020
BCOR 3020	Business Fundamentals - Finance	2	Fall/Spring	Co reqs: BCOR 3010 AND BCOR 3030 AND BCOR 3040 AND BCOR 3050
BME 67801	Data Science for Bioengineers	3	Fall	BME 3301 OR equivalent (Instructor permission)
BME 6770	Genomic Signal Processing	3	Spring	Graduate Status or instructor consent
BMI 5010	Foundations of Health Informatics	2	Fall	
BMI 5018	Intro to Prof for Biomedical Data Science	3	Fall	
BMI 5030	Foundations of Bioinformatics	2	Fall	
BMI 6015	Applied Machine Learning in BMI	3	Fall	
BMI 6060	Applied Computational Genomics	3	Spring	Knowledge of Molecular Biology
COMM 1270	Analysis of Argument	3	Fall/Spring/Summer	
CS 3540	Human/Computer Interaction	3	Fall	CS 2420 AND Full Major Status in CS
CS 5140	Data Mining	3	Spring	CS 3190 AND Full Major Status in CS
CS 5530	Database Systems	3	Spring	CS 3500 AND Full Major Status in CS
ECON 3200	Money and Banking	3		
ECON 3500	International Economics	3		
ECON 3540	Current Economic Problems	3		
ECON 4010	Intermediate Microeconomic Analysis	3	Fall/Spring/Summer	((ECON 2010 OR BUS 2010) AND ECON 2020) OR (AP Microecon 3+ AND AP Macroecon 3+) AND ((ECON 3620 OR MATH 1100 OR 1210 OR 1250 OR 1310 OR 1311) OR AP Calc AB 3+ OR AP Calc BC 3+)
ECON 4011	Intermediate Microeconomic Analysis for Business Economics and Analytics	3	Fall/Spring	(MATH 1220 OR 1260 OR 1320 OR 1321) AND (FMS in Econ or QAMO)
ECON 4020	Intermediate Macroeconomic Analysis	3	Fall/Spring/Summer	((ECON 2010 OR BUS 2010) AND ECON 2020) OR (AP Microecon 3+ AND AP Macroecon 3+) AND ((ECON 3620 OR MATH 1100 OR 1210 OR 1250 OR 1310 OR 1311) OR AP Calc AB 3+ OR AP Calc BC 3+)
ECON 4650	Econometrics	3	Fall/Spring/Summer	C- or better in ((ECON 3640 OR OIS 3440) OR "B" or better in (MATH 1070 OR OIS 2340 OR BCOR 2030) OR AP Statistics score of 3+)
ECON 5190	Health Economics	3	Fall/Spring	
ENGL 2095	Literature by the Numbers	3	Fall/Spring	
FINAN 3000	Fund of Investing and Business Finance	3	Fall/Spring/Summer	(MATH 1050 or MATH 1080 or MATH 1090 OR MATH 1100 OR MATH 1210 OR MATH 1310) OR (AP CALC AB score of 2+ OR AP Calc BS score of 2+)
FINAN 4070	Investments	3	Fall/Spring/Summer	(BCOR 3010 OR ACCTG 3000 OR ACCTG 5050) AND (BCOR 3020 OR FINAN 5050) AND (FMS in School of Business)
GEO 3070	Mineralogy and Petrology for Engineers	2	Every other Fall	GEO 1110 AND GEO 1115
GEOG 3020	Geographic Analysis	4	Spring	(MATH 1050 OR 1060 OR 1080 OR 1090 OR 1210 OR 1220 OR 1250 OR 1260 OR 1310 OR 1311 OR 1320 OR 1321) OR AP Calc AB score 3+ OR AP CalcBC score 3+ OR AP Statis score 3+ OR ACT Math score 26+ OR SAT math score 640+ OR IB Math score 5+
GEOG 3110	Introduction to Remote Sensing	3	Fall	
GEOG 3400	Population Geography	4	Fall	WRTG 2009 OR 2010 OR WR2 Equivalent
GEOG 4140	ADV Methods in Geographic Info Systems	4	Fall/Spring	GEOG 3100 OR GEOG 3140
GEOG 5110	Environ. Analysis through Remote Sensing	3	Spring	GEOG 3110
GEOG 5150	Geospatial Big Data	4	Fall	GEOG 4140
GEOG 5160	Spatial Modelling and Geocomputation	4	Spring	GEOG 4140
HGEN 6060	Applied Computation Genomics	3	Spring	Knowledge of Molecular Biology

IS 4420	Database Fundamentals	3	Fall/Spring/Summer	(IS 4410 OR IS 4411) AND (FMS in IS or Operations Management OR QAMO)
IS 4480	Data Warehouse Design and Impelmentation	3	Spring (Varies)	IS 4420 AND (FMS in IS OR FMS in QAMO)
IS 4482	Business Data Mining	3	Fall/Spring	IS 4420 AND (FMS in IS or QAMO)
LEAP 1250 OR PHIL 12	Reasoning and Rational Decision Making	3	Spring	LEAP 2700 (FOR LEAP 1250 only)
LING 3475	Language Myths	3	Fall/Spring	
LING 4020	Introduction to Syntax	3	Fall/Spring	LING 1069 OR LING 1200 OR ENGL 1200
LING 5300	Introduction to Computation Linguistics	3	Every other Spring	LING 1069 OR LING 1200 OR ENGL 1200; Co Req LING 4020
MATH 3080	Applied Statistics II	3	Spring	MATH 3070
MATH 5010	Introduction to Probability	3	Fall/Spring/Summer	(MATH 2210 OR MATH 1260 OR MATH 1280 OR MATH 1321 OR MATH 3140)
ME EN 3310	Mechanics of Materials	3	Fall/Spring	MATH 2250 OR (MATH 2270 AND MATH 2280) Co Req MATH 2210 AND ME EN 3315
ME EN 3315	Mechanics of Materials Lab	1	Fall/Spring	Co Req: ME EN 3310
ME EN 4650	Thermal Fluid and Energy Systems Lab	3	Fall/Spring	ME EN 2550, 3400, (2300, OR 3600 OR 3610) AND (37100 3710); Co Req: 4610 OR 3650
ME EN 5035	Design of Experiments	3	Fall	
MET E 3070	Statistical Methods in Eath Sciences and Engineering	3	Fall	MATH 1050 (reccomended)
MG EN 2400	Introductory Surveying	3	Fall/Summer	(MATH 1060 OR MATH 1080 OR MATH 1210 OR MATH 1220 OR MATH 1310 OR MATH 1320)
MSE 5050	Material Informatics	3	Spring	Python Knowledge
PHIL 3200	Deductive Logic	3	Fall/Spring	
PHIL 3210	Inductive Logic	3	Fall/Spring	
PHYS 3030	Discovering Complex Systems	3	Varies	Co Req Math 1010 or higher
POLS 3001	Political Analysis	3	Fall/Spring/Summer	
POLS 3005	Strategic Games	3	Fall	
PRT 3780	Program and Service Evaluation in Parks, Recreation, and Tourism	3	Fall/Summer	Complete 2 classes that fulfill a QA and WR2
PSY 3000	Statistical Methods in Psychology	4	Fall/Spring/Summer	(PSY 1010 OR PSY 1011) AND (Math 1050 or higher)
QAMO 3010	Buesinss Economics	3	Fall/Spring	(Math 1210 OR MATH 1220 OR MATH 1310 OR MATH 1320 OR MATH 1250) OR (AP Calculus BC score of 3+) OR (AP Calculus AB score of 4+)
SOC 3673	Social Epidemiolgy	3	Fall/Spring/Summer	
STAT 5003	Survey of Statistical Computer Packages	3	Fall/Spring	Knowledge of spreadsheets and applied statistics through regression
SW 3000	Applied Social Work Statistics	4	Fall/Spring/Summer	Math 1030 or QA equivalent
WRTG 4030	Visual Rhetoric	3	Fall/Spring/Summer	WRTG 2009 OR 2010 OR WR2 Equivalent