

Elective Courses for Undergraduate Data Science AND Fluency

B = BS in Data Science | **S** = Undergraduate Certificate in Data Science | **F** = Undergraduate Certificate in Data Fluency

Course #	Course Name	Use	Credits	Semester	Required Pre-Reqs (C minimum grade needed)
ATMOS 3000	Professional Devel in Atmospheric Sciences	B,S,F	2	Fall	-
ATMOS 5340	Environmental Programmng AND Statistics	B,S,F	3	varies	MATH 1210
ATMOS 5400	The Climate System	B,S,F	3	Fall	MATH 1050
ANTH 5234	Population Issues in Anthropology	B,S,F	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	F	3	Fall/Spring/Summer	BCOR 2020
BCOR 3020	Business Fundamentals - Finance	B,S,F	2	Fall/Spring	Full Major status in the David Eccles School of Business. Corequisites: BCOR 3010 AND BCOR 3030 AND BCOR 3040 AND BCOR 3050.
BME 6780	Data Science for Bioengineers	B,S,F	3	Fall	BME 3301 OR equivalent (instructor permission)
BME 6770	Genomic Signal Processing	B,S,F	3	Spring	Graduate status OR Instructor Consent
BMI 5010	Foundations of Health Informatics	B,S,F	2	Fall	-
BMI 5018	Intro to Prog for Biomedical Data Science	B,S,F	3	Fall	-
BMI 5030	Foundations of Bioinformatics	B,S,F	2	Fall	-
BMI 6015	Applied Machine Learning in BMI	B,S,F	3	Fall	-
BMI 6060	Applied Computational Genomics	B,S,F	3	Spring	Knowledge of Molecular Biology (including introductory courses)
COMM 1270	Analysis of Argument	F	3	Fall/Spring/Summer	-
CS 3540	Human/Computer Interaction	S,F	3	Fall	CS 2420 AND Full Major Status in CS
CS 5140	Data Mining	S,F	3	Spring	CS 3190 AND Full Major Status in CS
CS 5530	Database Systems	S,F	3	Spring	CS 3500 AND Full Major Status in CS
ECON 3200	Money and Banking	B,S,F	3	-	-
ECON 3500	International Economics	B,S,F	3	-	-
ECON 3540	Current Economics Problems	B,S,F	3	-	-
ECON 4010	Intermediate Microeconomic Analysis	S,F	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	S,F	3	Fall/Spring	(MATH 1220 OR 1260 OR 1320 OR 1321) AND (Full Major Status in ECON OR QAMO)

ECON 4020	Intermediate Macroeconomic Analysis	S,F	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	S,F	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 or better)
ECON 5190	Health Economics	S,F	3	Fall/Spring	-
ENGL 2095	Literature by the Numbers	F	3	Fall/Spring	-
FINAN 3000	Fund of Investing and Business Finance	B,S,F	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 better OR AP Calc BC score of 2 or better)
FINAN 4070	Investments	B,S,F	3	Fall/Spring/Summer	(BCOR 3010 OR ACCTG 3000 OR ACCTG 5050) AND (BCOR 3020 OR FINAN 5050) AND (Full Major OR Minor status in the David Eccles School of Business)
GEO 3070	Mineralogy and Petrology for Engineers	B,S,F	2	(every other) Fall	GEO 1110 AND GEO 1115
GEOG 3020	Geographic Analysis	B,S,F	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 CalcAB score 3+ OR AP CalcBC score 3+ OR AP Stats score 3+ OR ACT Math score 26+ OR SAT Math score 640+ OR IB Math score 5+
GEOG 3110	Introduction to Remote Sensing	B,S,F	3	Fall	-
GEOG 3400	Population Geography	B,S,F	4	Fall	WRTG 2009 OR 2010 OR WR2 equivalent
GEOG 4140	Adv Methods in Geographic Info Systems	B,S,F	4	Fall/Spring	GEOG 3100 OR GEOG 3140
GEOG 5110	Environ. Analysis through Remote Sensing	B,S,F	3	Spring	GEOG 3110
GEOG 5150	Geospatial Big Data	B,S,F	4	Fall	GEOG 4140
GEOG 5160	Spatial Modeling and Geocomputation	B,S,F	4	Spring	GEOG 4140
HGEN 6060	Applied Computational Genomics	B,S,F	3	Spring	Knowledge of Molecular Biology (including introductory courses)
IS 4420	Database Fundamentals	S,F	3	Fall/Spring/Summer	(IS 4410 OR IS 4411) AND (Full Major or Minor status in Information Systems OR Full Major status in Operations Management OR QAMO)
IS 4480	Data Warehouse Design and Implementation	B,S,F	3	(varies) Spring	IS 4420 AND (Full Major or Minor status in Information Systems OR Full Major status in QAMO)
IS 4482	Business Data Mining	S,F	3	Fall/Spring	IS 4420 AND (Full Major or Minor status in Information Systems OR Full Major status in QAMO)
LEAP 1250 OR PHIL 1250	Reasoning and Rational Decision Making	F	3	Spring	LEAP 2700 (for LEAP 1250 ONLY)
LING 3475	Language Myths	B,S,F	3	Fall/Spring	-
LING 4020	Introduction to Syntax	B,S,F	3	Fall/Spring	LING 1069 (HF) OR LING 1200 (HF) OR ENGL 1200 (HF)

LING 5300	Introduction to Computational Linguistics	B,S,F	3	(every other) Spring	LING 1069 (HF) OR LING 1200 (HF) OR ENGL 1200 (HF); Co-Req: LING 4020
MATH 3080	Applied Statistics II	S,F	3	Spring	MATH 3070
MATH 5010	Introduction to Probability	S,F	3	Fall/Spring/Summer	(MATH 2210 OR MATH 1260 OR MATH 1280 OR MATH 1321 OR MATH 3140)
ME EN 3310	Mechanics of Materials	B,S,F	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	B,S,F	1	Fall/Spring	Co-Req: ME EN 3310
ME EN 4650	Thermal Fluid and Energy Systems Lab	B,S,F	3	Fall/Spring	ME EN 2550, 3400, (2300 OR 3600 OR 3610) AND (3700 OR 3710); Co-Req: 4610 OR 3650
ME EN 5035	Design of Experiments	B,S,F	3	Fall	-
MET E 3070	Statistical Methods in Earth Sciences and Engineering	B,F	3	Fall	MATH 1050 (recommended ONLY)
MG EN 2400	Introductory Surveying	F	3	Fall/Summer	(MATH 1060 OR MATH 1080 OR MATH 1210 OR MATH 1220 OR MATH 1310 OR MATH 1320)
MSE 5050	Material Informatics	B,S,F	3	Spring	Python knowledge
PHIL 3200	Deductive Logic	B,S,F	3	Fall/Spring	-
PHIL 3210	Inductive Logic	B,S,F	3	Fall/Spring	-
PHYS 3030	Discovering Complex Systems	B,S,F	3	Varies	Co-Req: MATH 1010 OR higher
POLS 3001	Political Analysis	B,S,F	3	Fall/Spring/Summer	-
POLS 3005	Strategic Games	B,S,F	3	Fall	-
PRT 3780	Program and Service Evaluation in Parks, Recreation and Tourism	B,S,F	3	Fall/Summer	Complete 2 classes that fulfill a QA AND WR2
PSY 3000	Statistical Methods in Psychology	B,S,F	4	Fall/Spring/Summer	(PSY 1010 OR PSY 1011) AND (MATH 1050 OR higher)
QAMO 3010	Business Economics	B,S,F	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 Epidemiology	B,S,F	3	Fall/Spring/Summer	-
STAT 5003	Survey of Statistical Computer Packages	B,S,F	3	Fall/Spring	Knowledge of spreadsheets and applied statistics through regression
SW 3000	Applied Social Work Statistics	F	4	Fall/Spring/Summer	MATH 1030 OR QA equivalent
WRTG 4030	Visual Rhetoric	B,S,F	3	Fall/Spring/Summer	WRTG 2009 OR 2010 OR WR2 equivalent