

DATA SCIENCES, B.S. (INFORMATION SCIENCES AND TECHNOLOGY)

Begin Campus: Any Penn State Campus

End Campus: University Park

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2021-22 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition (*Note: the archive only contain suggested academic plans beginning with the 2018-19 edition of the Undergraduate Bulletin*).

Applied Data Sciences Option: Data Sciences, B.S. at University Park Campus

- View the Suggested Academic Plan for the Computational Data Sciences Option (<https://bulletins.psu.edu/undergraduate/colleges/engineering/data-sciences-bs/#suggestedacademicplantext>)
- View the Suggested Academic Plan for the Statistical Modeling Data Sciences Option (<https://bulletins.psu.edu/undergraduate/colleges/eberly-science/data-sciences-bs/#suggestedacademicplantext>)

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits	Spring	Credits
MATH 140 (GQ) ^{*†#}	4	MATH 141 ^{*#}	4
CMPSC 131 ^{*#}	3	CMPSC 132 ^{*#}	3
DS 200 ^{*#}	4	General Education Course Selection	3
ENGL 15 (GWS) [‡]	3	General Education Course Selection	3
PSU 17	1	Elective	3
General Education Selection	3		
	18		16

Second Year

Fall	Credits	Spring	Credits
DS 220 [*]	3	IST 230 [*]	3

MATH 220 [*]	2 STAT 318 or 414 [*]	3
CAS 100 (GWS) [‡]	3 ENGL 202 (GWS) [‡]	3
STAT 184	2 General Education Selection	3
General Education Selection	3 General Education Selection	3
Elective	3	

16 **15**

Third Year

Fall	Credits	Spring	Credits	Summer	Credits
DS 300 [*]	3	DS 320 [*]	3	IST 495 ^{*1}	1
DS 310 [*]	3	DS 410 [*]	3		
DS 330 [*]	3	STAT 380 [*]	3		
Application Focus Selection	3	Application Focus Selection	3		
Elective	3	General Education Selection	3		
	15		15		1

Fourth Year

Fall	Credits	Spring	Credits
DS 340W [*]	3	DS 440 [*]	3
DS 442, IST 442, SODA 308, IST 445, IST 441, DS 402, or IST 462	3	DS 442, IST 442, SODA 308, IST 445, IST 441, DS 402, or IST 462	3
Application Focus Selection (400-level)	3	Application Focus Selection (400-level)	3
General Education Selection	3	General Education Selection	3
General Education Selection	3	Elective	2
	15		14

Total Credits 125

* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

¹ 1 credit of IST 495 is required. A grade of C or better must be earned in this course. This requirement can be completed at any time before graduation.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

GWS, GQ, GHW, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS, and Integrative Studies). Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies courses are required for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and replace both ENGL 30H and CAS 100. Each course is 3 credits.

Advising Notes:

DS, IST, SRA, and MATH courses have enforced prerequisites.

Application Focus Areas and Recommended Course Listings

Students pick one of the tracks below or create a custom 4-course application focus. Select a minimum of 12 credits from each focus area. At least 6 credits must be at the 400 level. All 12 credits must be in the same application focus area.

Life Sciences

Code	Title	Credits
BMB 251	Molecular and Cell Biology I	3
BIOL 322	Genetic Analysis	3
MICRB 201	Introductory Microbiology	3
BMB 252	Molecular and Cell Biology II	3
BMB 400	Molecular Biology of the Gene	3
BMB 482	Introduction to Computational Biology	3
BMB 484	Functional Genomics	3
BMB 485	Human Genomics and Biomedical Informatics	3

Health Sciences

Code	Title	Credits
BBH 101	Introduction to Biobehavioral Health	3
BBH 203	Neurological Bases of Human Behavior	3
BBH 305	Introduction to Global Health Issues	3
BBH 310	Research Strategies for Studying Biobehavioral Health	3
BBH 311	Interdisciplinary Integration in Biobehavioral Health	3
BBH 315	Gender and Biobehavioral Health	3
BBH 316	Foundations and Principles of Health Promotion	3
BBH 368	Neuroanatomy, Behavior, and Health	3
BBH 410	Developmental and Health Genetics	3
BBH 432	Biobehavioral Aspects of Stress	3
BBH 440	Principles of Epidemiology	3
BBH 446	Human Sexuality as a Health Concern	3
BBH 451	Pharmacological Influences on Health	3

BBH 452	Women's Health Issues	3
BBH 469	Neurobiology	3

Food Science

Code	Title	Credits
FDSC 105	Food Facts and Fads	3
FDSC 200	Introductory Food Science	3
FDSC 201	Introductory Food Science Practicum	1
MICRB 201	Introductory Microbiology	3
MICRB 202	Introductory Microbiology Laboratory	2
BMB 211	Elementary Biochemistry	3
BMB 212	Elementary Biochemistry Laboratory	1
FDSC 400	Food Chemistry and Analysis (I)	4
FDSC 404	Sensory Evaluation of Foods	3
FDSC 405	Food Engineering Principles	3
FDSC 406W	Physiology of Nutrition	3
FDSC 408	Food Microbiology	3
FDSC 409	Laboratory in Food Microbiology	2
FDSC 410	Food Chemistry and Analysis (II)	3
FDSC 413	Science and Technology of Plant Foods	3
FDSC 414	Science and Technology of Dairy Foods	3
FDSC 430	Unit Operations in Food Processing	3
FDSC 497	Special Topics	3

Information and Cybersecurity Sciences

Code	Title	Credits
IST 220	Networking and Telecommunications	3
SRA 221	Overview of Information Security	3
IST 242	Intermediate & Object-Oriented Application Development	3
IST 261	Application Development Design Studio I	3
CYBER 262	Cyber-Defense Studio	3
CYBER 362	Cybersecurity Analytics Studio	3
CYBER 366	Malware Analytics	3
IST 451	Network Security	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3

Astronomy

Code	Title	Credits
ASTRO 21	Introduction to Research in Astronomy	2
ASTRO 120	The Big Bang Universe	3
ASTRO 130	Black Holes in the Universe	3
ASTRO 140	Life in the Universe	3
ASTRO 291	Astronomical Methods and the Solar System	3
ASTRO 292	Astronomy of the Distant Universe	3
ASTRO 401	Fundamentals of Planetary Science and Astronomy	4
ASTRO 402W	Astronomical Telescopes, Techniques, and Data Analysis	3
ASTRO 496	Independent Studies	1-3
BIOL/GEOSC 474	Astrobiology	3
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4

PHYS 250	Introductory Physics I	4
PHYS 251	Introductory Physics II	4

Custom Application Focus

There is an option for a student to create a custom 4-course application focus sequence. It must be a coherent sequence of courses that provides context for the student in terms of content relevant to the Data Sciences program. It should contain at least six credits of 400-level coursework. It must be selected in consultation with an academic adviser or the program coordinator of Data Sciences in the College of IST.