Keystone College

2024-2025 Undergraduate Catalog Addendum

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In September 2024, an addendum was published to the 2024-2025 Undergraduate Catalog. The addendum includes an update to the Accreditation and Authorizations section and should be used in conjunction with the 2024-2025 Undergraduate Catalog. Any questions concerning the catalog addendum should be directed to the Registrar's Office at *registrar@keystone.edu*.

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Data Analytics
Bachelor of Science

The bachelor of science degree in data analytics provides students the theoretical and practical foundation for core concepts and theories of data science. Students will learn how to think critically, communicate effectively and use different technical, analytic and modeling skills. Individuals who graduate from this program are equipped to pursue careers in diverse fields such as business, education, government, medicine and science.

Graduation Requirements

ENGL 0050 – Critical and Analytical Reading – All students must demonstrate competency in this course whether by achieving specified SAT/ACT scores or by successful completion of the course. The course carries two credits which are included in full-time status as well as athletic eligibility and financial aid considerations, but do not count toward the minimum earned credits necessary for graduation. Students who are exempted from the course due to SAT/ACT scores received an exemption that does not carry credits.

All students must successfully complete the General Education and Curriculum requirements listed below with a minimum overall grade point average of 2.00 to graduate from this curriculum. Students must also maintain a cumulative grade point average of 2.50 in all major-relevant courses to continue in the major. Additional graduation criteria are found beginning on page 41.

General Education Requirements (Minimum 40 credits)

Courses fulfilling the General Education Requirements can be found beginning on page 53.

Competencies

Communication Skills 11 credits
- COMM 1125 - Speech Communication
- ENGL 1110 - College Writing I: Academic Writing
- ENGL 1125 - College Writing II: Writing About Literature
- FYS 1110 - The First-Year Seminar

Moral Reasoning 3–6 credits
Quantitative Reasoning 3–6 credits
Scientific Literacy 3–6 credits
Technology & Information Literacy 3–6 credits
Critical Analysis & Reasoning
- Arts & Humanities Literacy 6–9 credits
- Social & Cultural Consciousness 6–9 credits

Curriculum Requirements

At least 36 of the 120 credits required for the bachelor's degree must be at the 3000-and/or 4000 level.

Data Analytics Core (25)
BUSN 2130 Business Communications
IT 1110 Intro to IT
IT 1120 Intro to Programming: Python
IT 1140 Foundations of Data Analytics I
IT 1145 Foundations of Data Analytics II

MATH 1155 Pre-Calculus
Or MATH 2150 Calculus I
MATH 2115 Statistics
MATH3120 Statistics and Research
Data Science or Business Analytics Concentration Electives

Data Science Concentration (24 - 28)
CPSC 1140 Programming for Everyone
CPSC 2110 Data Science I
CPSC 2115 Data Science II
CPSC 3110 Data Structures
CPSC 3150 Machine Learning
CPSC 4150 Alogrithms
CPSC/PSYC 4130 Artificial Intelligence
IT 4920 Data Analytics Practicum
MATH 2150 Calculus I (if not taken above)

Business Analytics Concentration (24)
ACCT 1125 Managerial Accounting or higher
BUSN 3150 Business Law
BUSN 2110 Principles of Management
BUSN 2115 Marketing
IT 2150 Business Analytics I
IT 2155 Business Analytics II
IT 3190 Data Analytics
IT 4925 Business Analytics Practicum

Electives (choose 2 not used above) (6)
BUSN 3300 Business Ethics
IT 2120 Database Management Systems II
IT 3190 Data Analytics
IT 4240 Programming Languages
MATH 2155 Calculus II
PSYC 3125 Research Methods for the Social and Behavioral Sciences
SRM 4145 Sport Analytics

Free Elective Courses: Sufficient free electives must be taken to ensure a minimum of 120 credits earned for graduation.

The academic advisor assists the student in planning his/her curriculum and in preregistration; however, the student is ultimately responsible for meeting the requirements of the curriculum selected.

Course offerings are dependent on enrollment.

Course Descriptions

CPSC 2110 Data Science I: This course is an introduction to data science in Python. You'll use advanced visualization and predictive modeling tools to turn raw data into actionable insights. You will also learn how to use SQL to navigate databases. Prerequisite course(s) IT 1120, IT 1140, IT 1145, and CPSC 1140. *3 hours lecture, discussion, laboratory. 3 credits*

CPSC 2115 Data Science II: This course is intended as a continuation of Data Science I. This course takes a deep dive into machine learning models, natural language processing, and time series in Python. Prerequisite course(s) IT 1120, IT 1140, IT 1145, CPSC 1140 and CPSC 2110 Data Science I. *3 hours lecture, discussion, laboratory. 3 credits.*

CPSC 3150 AI-Machine Learning: This course is a technical approach to cutting-edge AI methods. Students will productionize machine learning models to solve business problems, evaluate modern AI use cases (such as computer vision) and adapt Large Language Models (LLMs) for specific applications. Prerequisite course(s): IT 1120, IT 1140, IT 1145, CPSC 1140, CPSC 2110 Data Science I and CPSC 2115 Data Science II. *3 hours lecture, discussion, laboratory. 3 credits*

CPSC 4150 Algorithms: This course explores algorithms from a coding-focused perspective, using Python. Students will learn about the issues that arise in the design of algorithms for solving computational problems and will explore a number of standard algorithm design paradigms and their applicability. Students will also become familiar with concepts of runtime, recursion, implementation and evaluation. This course features a heavy emphasis on practical application of algorithms to common development and engineering challenges. This online class has optional live sessions. Prerequisite course(s): IT 1120, CPSC 1140, MATH 2150 and CPSC 3110. *3 hours lecture, discussion, laboratory. 3 credits*

IT 2150 Business Analytics I: This course focuses on using the most common business analytics tools in the industry. You'll build foundational skills in SQL and Tableau to extract, analyze, and visualize data. You'll also dive into database design, hypothesis testing, and the nuances of big data in the business landscape. Prerequisite course(s): IT 1140 and IT 1145. *3 hours lecture, discussion, laboratory. 3 credits*

IT 2155 Business Analytics II: This course is intended as a continuation of Business Analytics I. You'll build on your knowledge of business analytics tools by learning advanced SQL and Tableau skills and predictive modeling. This course is oriented around business case studies to apply this new-found knowledge to real-world scenarios. Prerequisite course(s): IT 1140, IT 1145, and IT 2150 Business Analytics I. *3 hours lecture, discussion, laboratory. 3 credits*

IT 4925 Business Analytics Practicum: In this capstone course, students engage in a hands-on business analytics project, tackling a real-world data problem from start to finish. This immersive experience equips students with the skills needed for their future roles as analysts, with a special focus on honing job interview skills and communicating findings to stakeholders. Students will also learn how to build a portfolio for their job search. This online class has optional live sessions. Prerequisite course(s): IT 1140, IT 1145, IT 2150 Business Analytics I, and IT 2155 Business Analytics II. *3 hours lecture, discussion, laboratory. 3 credits*