Programming II

Course Description

This course introduces object-oriented programming in Python. It covers object-oriented programming elements and techniques in Python, such as primitive types and expressions, basic I/O, basic programming structures, abstract data type, object class and instance, Methods, Java File I/O, object inheritance, collections and composite objects, advanced input /output: streams and files, and exception handling. Students will gain hands-on programming experience using Python.

Prerequisite

CIST 1404 Programming I

Course Learning Outcomes

Upon the successful completion of this course, students will be able to:

- Develop and implement programs using statements with Python;
- Design and implement basic programming structures with Python;
- Apply Python I/O to problems in data science;
- Describe and use object orientation, such as object classes and instances, methods, and inheritance;
- Use advanced structures, such as collections and composite objects.

DASCD 2113 Principles and Techniques in Data Science

Principles and Techniques in Data Science is an intermediate semester-long data science course that follows an overview of data science in today's world. This class bridges between Introduction to Data Science and upper division data science courses as well as methods courses in other concentrations. This class equips students with essential basic elements of data science, ranging from database systems, data acquisition, storage and query, data cleansing, data wrangling, basic data summarization and visualization, and data estimation and modeling. Students will gain hands-on experience using Python and various packages in Python.

Prerequisite

MATH 2015 Calculus II

Course Learning Outcomes

Upon the successful completion of this course, students will be able to:

- Gain the necessary foundation and context to prepare for more advanced data science topics;
- Gain a greater understanding of relational database management systems and their use in data acquisition, data storage, and data query.
- Query, combine, and cleanse the data to identify potential issues and resolve inconsistencies, errors, and/or issues in the data;
- Summarize, visualize, and transform the data to understand it more deeply as well as discover data patterns that may inform further analyses;
- Employ various mathematical and statistical tools for modeling and estimation of the data;
- Use principles and techniques in data science to communicate conclusions and patterns in the data to diverse audiences.

DASC 2133 Data Privacy and Ethics

Course Description

Data Privacy and Ethics explores the intersection of ethics and contemporary (Big) data analytics. In particular, we will discuss how data analytics impacts ethical issues like privacy, autonomy, transparency, discrimination, data ownership, and justice, while also investigating its impact on the cohesiveness of society and democracy.

Prerequisites/ Co-Requisites

DASC 1003 Introduction to Data Science

Course Learning Outcomes

Upon the successful completion of this course, students will be able to:

- Demonstrate understanding of the ethics that bear on the work of data scientists;
- Develop and assess arguments, utilizing those ethical concepts and ideas, for and against various data ethics practices;
- Communicate the concepts and arguments to employers, the public, and other stakeholders in the impact of data analytics on society.