[University Logo]

**Syllabus**

**Course Title:** Python Data Science

**Course Code**: [Course Code]

**Term:** [Term/Year]

**Instructor:** [Instructor's Name]

**Email:** [Instructor's Email]

**Office Hours:** [Office Hours and Location]

**Class Meeting Times and Location:** [Day(s) and Time(s), Room Number]

**Course Description:**

This course focuses on Python programming for data analysis and data science. It aims to help students understand Python as a programming language, master the fundamental concepts, methods, and skills of Python programming for data science and data analysis, and develop the ability to work on data manipulation, visualization, statistical analysis, and machine learning projects using Python.

**Course Objectives:**

1. Differentiate and establish connections between Python and other programming languages, such as C and Java.

2. Master the foundational concepts, methods, and skills required for Python programming in data science.

3. Develop proficiency in data processing, visualization, statistical analysis, and machine learning using Python.

4. Enhance practical, hands-on capabilities for data analysis and data science projects in Python.

**Course Overview:**

This course is focused on data analysis and data science, emphasizing Python programming principles. It will empower students to handle data processing, visualization, statistical analysis, and machine learning using Python. This course serves as a solid foundation for subsequent related courses.

**Prerequisites:**

- C Programming

- Java Programming

- Data Structures

- Database

**Target Audience:**

Students in the [Department/Major], including those in [Student Groups].

Textbook and References:

**Textbook:**

- Chaolemen Borjigin. Python Data Science, Springer, 2023

**Grading Policy:**

- Regular Assessment (60%):

- Class Assignments: 90%

- Midterm Exam (0%)

- Final Exam (40%)

**Grading Scale:**

A: [90-100]

B: [80-89]

C: [70-79]

D: [60-69]

F: [0-59]

**Course Schedule:**

| Week | Module | Topics Covered | Objectives | Readings | Assignments |

|------|--------|-----------------------------|--------------------------------------------------|-------------------|---------------------|

| 1 | (1) | Preparation | - Features of Python | [Textbook Chapter]| Exercises 1-3 |

| | | | - Setting up Python Development Environment | | |

| | | | - Basic Steps and Considerations for Python Programming | | |

| 2 | (2) | Python Basics | - Data Types and Variable Definitions | | Exercises 4-13 |

| | | | - Writing Statements and Common Statements | | |

| | | | - Operators | | |

| 3 | (2) | | - Lists, Tuples, and Sequences | | Exercises 14-19 |

| | | | - Sets and Dictionaries | | |

| 4 | (2) | | - Functions | | Exercises 20-24 |

| 5 | (2) | | - Packages and Modules | | Exercises 26, 27, 28|

| | | | - Python Help Documentation | | |

| | | | - Search Paths and Current Working Directory | | |

| 6 | (2) | | - Object-Oriented Programming in Python | | Exercise 31 |

| 7 | (3) | Data Processing | - NumPy and Arrays | | Exercise 36 |

| 8 | (3) | | - Pandas and DataFrames | | |

| 9 | (3) | | - Matplotlib and Data Visualization | | |

| 10 | (4) | Data Analysis | - Statistical Analysis (Part 1) | | |

| 11 | (4) | | - Statistical Analysis (Part 2) | | |

| 12 | (4) | | - Machine Learning (Part 1) | | |

| 13 | (4) | | - Machine Learning (Part 2) | | Exercise 43 |

**Policies and Expectations:**

1. Attendance Policy: Regular attendance is expected, and excessive absences may result in grade penalties.

2. Late Submission Policy: Late assignments will be subject to a penalty, as outlined in the course assignments.

3. Academic Integrity: Plagiarism and academic misconduct are not tolerated. Refer to the university's academic integrity policy for details.

4. Accommodations: Students with disabilities are encouraged to contact the instructor to discuss accommodations.

5. Communication: For any questions or concerns, students are encouraged to reach out to the instructor through email or during office hours.

**Course Resources:**

-Chaolemen Borjigin.Python Data Science, Springer,2023

- [List any additional resources, such as online platforms, websites, or support services that students may find helpful.]

**Disclaimer:**

This syllabus is subject to change. Any modifications will be communicated to students in advance.

[University Name]

[Department Name]

[Department Contact Information]

[Date]