Texas Tech University
Department of Computer Science

Course Name: Programming Principles I   **Number:** CS1411-001/003/005   **Semester:** Fall 2018

Class Sections: 001: EE 101, 9:30-10:50 (Tue, Thur)   **Lab Sections:** 501: ME North 151, 11:00-1:50 (Tues)
003: EE 101, 9:30-10:50 (Tue, Thur)   503: ME North 151, 2:00-4:50 (Tues)
005: EE 101, 9:30-10:50 (Tue, Thur)   505: CE 218, 11:00-1:50 (Tues)

Instructor: Dr. Susan Mengel   **Office:** EC211   **Email:** susan.mengel@ttu.edu
Instructor Office Hours: 2:00-3:00 (Tue, Wed, Thur)

Catalogue Listing: Procedural programming. Discipline of computer science; analysis, design, implementation, debugging, and testing of software. Introduction to field for majors.

Text (required): William Punch and Richard Enbody, *The Practice of Computing Using Python, 3rd ed.*, Pearson, 2017.

Course objectives:

The purpose of this course to expand the students' knowledge of computer science and the craft of programming. The course will delve into problem analysis, data modeling, and algorithm/program development. Students who succeed in this course will:
1. have a basic understanding of what the discipline of Computer Science involves
2. be able to read and develop imperative programs of simple to moderate complexity in the Python programming language
3. be able to informally reason about the correctness of such programs
4. understand the basics of recursion and develop simple recursive programs

Key Topics:

These topics will be covered (as appropriate) in the Python programming language.
(a)   Problem solving methodology, e.g., by refinement of specification or top-down approach.
(b)   Data types (e.g., int, char, etc) and structures (arrays, lists).
(c)   Expressions (assignment, arithmetic).
(d)   Control flow: conditional statements (if/else, switch), iteration (for, do-while, while).
(e)   Functions.
(f)   I/O (console, files (text, binary)).
(g)   Introduction to local and global impacts of computing on individuals, organizations, and society.

Learning Outcomes & Assessment Methods: Students who have completed this course should have the ability to:

Objective	ABET Outcomes	Assessment Methods
1. Apply the learned methodology to solve problems.	2, 4, 6	Assignments, Exams
2. Comprehend and develop Python code (to the extent covered in the course).	2, 6	Assignments, Exams
3. Comprehend and apply data types and structures.	2, 6	Assignments, Exams
4. Comprehend and apply the expressions, control flows, functions and I/O.	2, 6	Assignments, Exams

Course Prerequisite: Departmental approval.

Course Corequisite: MATH 1451 Calculus I with Applications

Expected prior knowledge and skills in: None.

Grading Policy: The final grade for this course will be based on assignments and exams, as described below:
- Assignments: **40%**
- Three Exams: **60% (20% each)**

Please note the following:
- The usual grading scale will be used: A (90-100), B (80-89), C (70-79), D (60-69), F (0-59). This scale is subject to change depending on class performance.
- Submitted work is due when specified, but may be accepted late (with a 10-20% penalty) with the instructor's permission. If you know you will be absent ahead of time, let the instructor know and turn your assignment in early if possible.
- Assignments are given during the class lecture or lab period and may be programming, discussions, presentations, quizzes, or other activities.
- In-Class assignments may be given and collected during class/lab period. No make-up in-class assignments are given.
- Exams allow the student to demonstrate mastery of the material covered in the lecture, lab, and assignments. Exams are comprehensive in nature and build upon all material in the course.

Ethical Conduct:
Although students are encouraged to discuss ideas and problems with the TA, instructor, and other students, academic dishonesty will not be tolerated. Unless stated otherwise by the instructor, you are not allowed to share code or answers, use or even look at code or answers obtained from online sources, friends, or classmates. **It is your responsibility to educate yourself about actions that constitute academic dishonesty**. If you are not sure whether a specific action is allowed, talk to the instructor and the TA before you indulge in it. All submitted code and assignments will be randomly checked for plagiarism. Academic dishonesty of any kind, if discovered, will result in one or more of the following sanctions: a grade of 0 for the corresponding graded item, a grade of "F" in the course, and further action according to the TTU operating procedures: http://www.depts.ttu.edu/opmanual/OP34.12.pdf.

Classroom Civility:
All violations of classroom civility will be reported to the Student Judicial Programs. The Texas Tech University Catalog states: "Students are expected to assist in maintaining a classroom environment that is conducive to learning." In order to ensure that all students gain from time spent in class, **students are prohibited from engaging in any form of distraction**, e.g., reading newspapers (or other articles), working on other courses, and using cell-phones or laptops for calls or messages. If you indulge in any such inappropriate behavior (without explicit consent of the instructor), you will (at the very least) be asked to leave the classroom.

Student with Disabilities:
Any student who, because of a disability, may require special arrangements in order to meet course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor's office hours. Please note that instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services Office in 335 West Hall or 806-742-2405.

Center for Campus Life:
The Center for Campus Life can assist in notifying the campus community of student illnesses, immediate family deaths and/or student death. Generally, in cases of student illness or immediate family deaths, the notification to the appropriate campus community members occur when a student is absent from class for four consecutive days with appropriate verification. It is the student's responsibility for missed class assignments and/or course work during their absence.

Class Attendance:
The student is responsible to inform the instructor, ahead of time if possible, of any absence and the reason. In certain circumstances, make-up work due to absence(s) may be allowed on a case-by-case basis with a possible penalty only with instructor permission and with reference to TTU operating procedures. Make-up work should be submitted preferably before the next class period after the absence(s).

- Student Absence for Observance of Religious Holy Day, http://www.depts.ttu.edu/opmanual/OP34.19.pdf
- Sponsorship of Student Activities and Off-campus Trips, http://www.depts.ttu.edu/opmanual/OP34.06.pdf
- Class Attendance, http://www.depts.ttu.edu/opmanual/OP34.04.pdf

Course Schedule: The table (below) provides the initial distribution of topics discussed over the weeks in the semester. **This schedule is tentative and subject to change**. All changes will be announced in class or on the course website (Blackboard). Students are responsible for making sure they are informed about announcements.

Class (TR)	Lab (T)	Activity	Material
Aug 28, 30	Aug 28	Lecture, Lab does not meet this week	Syllabus, Global and Local Impact of Computers on Society Textbook: Chapter 1 Beginnings Lab 0 – Install Python 3
Sept 4, 6	Sept 4	Lecture, Lab	Textbook: Chapter 2 Control Lab 1 – Chapter 1
Sept 11, 13	Sept 11	Lecture, Lab	Textbook: Chapter 3 Algorithms and Program Development Lab 2 – Chapter 2
Sept 18, 20	Sept 18	Lecture, Lab	Textbook: Chapter 4 Working with Strings Lab 3 – Chapter 3
Sept 25, 27	Sept 25	Lecture, Lab, Exam 1	Textbook: Exam 1 Review Exam 1: Global and Local Impact of Computers on Society, Chapters 1, 2, 3 (Thursday) Lab Review – Chapters 1, 2, 3
Oct 2, 4	Oct 2	Lecture, Lab	Textbook: Chapter 5 Functions – Quickstart Lab 4 – Chapter 4
Oct 9, 11	Oct 9	Lecture, Lab	Textbook: Chapter 6 Files and Exceptions I Lab 5 – Chapter 5
Oct 16, 18	Oct 16	Lecture, Lab	Textbook: Chapter 7 Lists and Tuples Lab 6 – Chapter 6
Oct 23, 25	Oct 23	Lecture, Lab	Textbook: Chapter 8 More on Functions Lab 7 – Chapter 7
Oct 30, Nov 1	Oct 30	Lecture, Lab, Exam 2	Textbook: Exam 2 Review Exam 2: Chapters 4, 5, 6, 7 (Thursday) Lab Review – Chapters 4, 5, 6, 7
Nov 6, 8	Nov 6	Lecture, Lab	Textbook: Chapter 9 Dictionaries and Sets Lab 7 – Chapter 8
Nov 13, 15	Nov 13	Lecture, Lab	Textbook: Chapter 14 Files and Exceptions II Lab 8 – Chapter 9
Nov 20	Nov 20	Lecture, No Lab	Textbook: Chapter 15 Recursion: Another Control Mechanism Lab 9 – Chapter 14
Nov 27, 29	Nov 27	Lecture, Lab	Textbook: Chapter 15 Recursion: Another Control Mechanism Lab 10 – Chapter 15
Dec 4		Lecture	Exam 3 Review
Dec 8 Sat		Final Exam Period 7:30 AM – 10:00 AM	Exam 3: Chapters 8, 9, 14, 15