

BU CAS CS 320 (FALL, 2017)  
CONCEPTS OF PROGRAMMING LANGUAGES

## Syllabus

- **Semester** Fall, 2017
- **Lecture Times:** TR: 12:30-1:45pm
- **Classroom:** COM 101
- **Instructor:** Hongwei Xi
- **Instructor's Office:** MCS 287
- **Instructor's Office Hours:** TBA
- **Teaching Fellow:** Mark Lemay
- **Teaching Fellow's Office Hours:** TBA
- **Class Homepage:**  
<http://www.cs.bu.edu/~hwxi/academic/courses/CS320/Fall17/classpage.html>
- **Textbook:**
  - *A Functional Crash into ATS* by Hongwei Xi, which is available at:  
<http://www.ats-lang.org/Documents.html#ATS2FUNCRASH0>
  - *Introduction to Programming in ATS* by Hongwei Xi, which is available at:  
<http://www.ats-lang.org/Documents.html#INT2PROGINATS>
- **Midterm 1** : A take-home exam on Thursday, the 19th of October, 2017.
- **Midterm 2** : A take-home exam on Thursday, the 30th of November, 2017.
- **Final:** A two-hour in-class exam
- **Overview:** Concepts of Programming Languages (CPL) is a course that introduces students to some fundamental concepts in programming language design and implementation. The primary goal is to allow students who complete this subject to have a good feel for the elements of style and aesthetics of programming and a good command of the major techniques for controlling complexity in programming.

ATS is a programming language that makes pervasive use of types in capturing programming invariants. We will be learning how datatypes in ATS can be used to conveniently model data structures and how pattern matching can be used to facilitate programming with datatypes. Also, we are to make extensive use of abstract types in the construction of (relatively) large and complex programs.

Ultimately, we would like to make a convincing argument that programming can be a great deal of fun if you do it the right way!

- **Grades** The final score is calculated using the following formula.

$$\begin{aligned}
 \text{final score} &= 30\% \cdot (\text{homework} + \text{quizzes}) \\
 &+ 20\% \cdot (\text{midterm1}) \\
 &+ 20\% \cdot (\text{midterm2}) \\
 &+ 20\% \cdot (\text{final}) \\
 &+ 10\% \cdot (\text{class participation})
 \end{aligned}$$

The final letter grade is calculated as follows.

- **A:** final score is 80% or above (A-, A)
  - **B:** final score is 70% or above (B-, B, B+)
  - **C:** final score is 60% or above (C-, C, C+)
  - **D:** final score is 50% or above (D)
- **Homework Assignments** There will be a homework assignment every one or two weeks depending on the amount of effort and time needed to finish the assignment. An assignment that is turned in after its due time is accepted but penalized according to the following policy.
    - 20% point deduction if the assignment is turned in within 24 hours after its due time.
    - 50% point deduction if the assignment is turned in between 24 and 48 hours after its due time.
    - no credit if the assignment is turned in more than 48 hours later after its due time.
  - **Academic Integrity:** We adhere strictly to the standard BU guidelines for academic integrity. For this course, it is perfectly acceptable for you to discuss the general concepts and principles behind an assignment with other students. However, it is not proper, without prior authorization of the instructor, to arrive at collective solutions. In such a case, each student is expected to develop, write up and hand in an individual solution and, in doing so, gain a sufficient understanding of the problem so as to be able to explain it adequately to the instructor. Under *no* circumstances should a student copy, partly or wholly, the completed solution of another student. If one makes substantial use of certain code that is not written by oneself, then the person must explicitly mention the source of the involved code.