



COMP360 Programming Languages

Spring 2020

North Carolina Agricultural and Technical State University
College of Engineering Department of Computer Science
Course Syllabus

Course Information

COMP360-001 CRN: 20022 3 credits

Lectures: Monday, Wednesday and Friday at 2:00pm – 2:50pm in 213 McNair Hall

Instructor Contact Information

Instructor Dr. Kenneth A. Williams
Office Location 225 Cherry Hall
Office Phone 336 258-4824 cell: 336 456-5520
Email Address williams@ncat.edu

Student Hours: Noon to 1:00pm on MWF, 3:00 to 4:00pm on MF, 3:00 to 5:00pm on Wednesdays. These are times you may visit your professor without an appointment to request the assistance that you need. You may make an appointment to visit your professor at other times.

Communication: Assignments and course material will appear on the University's online Blackboard system, <https://blackboard.ncat.edu> Most assignments will be submitted through Blackboard. The web page <http://williams.comp.ncat.edu/comp360> contains lecture slides and other information. Email messages are sent to the student's A&T email address. It is the student's responsibility to regularly check their A&T email account. Students are responsible for reading, understanding, and following their syllabi.

Course Pre-requisite: COMP280 Data Structures

Course Description

This course focuses on formal specification of programming languages, including definition of syntax and semantics: simple statements including precedence, infixes, prefix, and postfix notations. It highlights global properties of algorithmic languages including sequence control, data structure implementation, scoping, storage management, grouping of statements, binding time, sub-routines, and tasks.

Student Learning Objectives/Outcomes: Upon completion of this course, the student should be able to:

- Describe how programming language constructs are implemented from an abstract (high) level to the operating system and hardware (low)
- Implement portions of a compiler
- Select from the different language paradigms an appropriate programming language to design and implement an efficient and effective software application
- Write simple programs in different programming paradigms
- Understand how software interacts with the hardware

ABET Outcomes:

- Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- Apply computer science theory and software development fundamentals to produce computing-based solutions.

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Required Textbook: *Programming Language Pragmatics (4th Edition)* by Michael L. Scott, ISBN 9780124104099

There will be additional online reading assignments.

Response clickers: This course will use response clickers during the lecture. The response clickers will be used to provide input during the lectures and to record attendance. If you do not bring your response clicker to lecture, you will only get half credit for attendance.

Grading Policy: A student's grade in the class will be based on their performance on the exams, quizzes, programs and homework assignments as well as lecture attendance. All work will be graded on a numerical scale from 0 to 100. The final grade will be the weighted sum of all work using the following weights:

attendance	4 %
assignments and quizzes	16 % combined
3 exams	20 % each
final exam	20 %

The lowest assignment or quiz grade will be discarded. Assignments must be turned in at the specified time and date for full credit, unless accompanied by a valid excuse. Assignments turned in within one day of the assigned time will be penalized 15%. Assignments turned in within two days of the assigned time will be penalized 25%. **No Assignments will be accepted after two days.** Students who are absent during a class period when a test is given, will receive a score of zero unless previous arrangements are made or a valid written excuse is presented. Student who miss an exam for a valid reason should see the instructor to arrange a makeup exam. There is no extra credit.

Final letter grades will be based on the following scale:

Letter Grade	from	up to but not including
A	87	100
A-	85	87
B+	82	85
B	77	82
B-	75	77
C+	72	75
C	62	72
C-	60	62
D+	57	60
D	50	57
F	0	50

Students will be allowed one and only one 8½ by 11 inch page of notes during the exams. Both sides of the note page can contain information as small as the student desires. You are not allowed to use more than 187 square inches of paper surface to hold your notes. Any additional pages, fold outs, flaps or other means of extending the page of notes will be considered cheating.

The final exam will be optional for a student when it is determined by the instructor that it is statistically unlikely that the final exam will change the student's grade. A student always has the option to take the final exam if they wish to do so. When a student is permitted to not take the final exam, their course grade will be determined by the weighted average of all other graded work.

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Class Attendance: The lectures introduce the class material. Some material presented in the lectures is not covered in the text. Students are responsible for all class material covered or assigned in lectures. After the first three classes, students must attend 39 of the remaining 42 lectures to receive 100% of their attendance grade. For each class missed the attendance grade will be lowered by 5 points. If you come to class without your clicker, you will only receive half credit for your attendance that day. If your clicker comes to class without you, you will lose all attendance points.

Classroom Citizenship: Courtesy, civility and respect must be the hallmark of your interactions. North Carolina A&T State University has rules and regulations that govern student conduct and discipline meant to ensure the orderly and efficient conduct of the educational enterprise. It is the responsibility of each student to be knowledgeable about these rules and regulations. Please see the relevant links below.

Compliance with the Americans with Disabilities Act North Carolina A&T State University is committed to complying with the Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 by providing equal access to the programs, services and benefits to qualified students with disabilities. All reasonable efforts must be made to accommodate the needs of students with documented disabilities. If a student has a disability that qualifies under the American with Disabilities Act Amendments Act (ADAAA) and requires accommodations, he/she should contact or visit the Office of Accessibility Resources (OAR) located in Murphy Hall, Suite 01 or at (336) 334-7765 for information on appropriate policies and procedures. Disabilities covered by ADA may include learning, psychiatric, physical disabilities, or chronic health disorders. Students can contact the Office of Accessibility Resources if they are not certain whether a medical condition/disability qualifies. Please note that approved accommodations must be adhered to by law, but cannot be performed retroactively.

Title IX

North Carolina A&T State University is committed to providing a safe learning environment for all students, is free of all forms of discrimination and harassment. Sexual misconduct and relationship violence in any form are inconsistent with the university's mission and core values, violate university policies, and may also violate federal and state law. Faculty members are considered "Responsible Employees" and are required to report incidents of sexual misconduct and relationship violence to the Title IX Coordinator. If you or someone you know has been impacted by sexual harassment, sexual assault, dating or domestic violence, or stalking, please visit the Title IX website to access information about university support and resources. If you would like to speak with someone confidentially, please contact the Counseling Services or Student Health Center.

Technical Support

If you experience any problems with your A&T account you may call Aggie Tech Support at 336.334.7195 or <https://hub.ncat.edu/administration/its/services-for-students.php>

Student Affairs website <https://www.ncat.edu/campus-life/student-affairs/index.php>

Student Handbook: <https://www.ncat.edu/campus-life/pdfs/student-handbook-19-20.pdf>

Sexual Misconduct Policy <https://www.ncat.edu/legal/title-ix/sexual-harassment-and-misconduct-policies/index.php>

Family Educational Rights and Privacy Act <https://www.ncat.edu/registrar/ferpa.php>

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Student Complaint Procedures are in section VIII.M of the Student Handbook:
<https://www.ncat.edu/campus-life/pdfs/student-handbook-19-20.pdf>

Undergraduate Bulletin: <http://www.ncat.edu/divisions/academic-affairs/bulletin/2018-2019/>

Academic Dishonesty Policy: Instances of cheating will be handled according to College of Engineering policy. Academic integrity is critical to maintaining high standards within the academic community. All students enrolled in the College of Engineering are expected to demonstrate academic integrity when submitting course-related work (e.g., assignments, quizzes, individual projects, and exams). Cheating covers any case in which a student has received unauthorized aid in his/her performance that contributes to a course grade or submits material contributing to a course grade with the intent to deceive the instructor or grader. Plagiarism or submitting material copied from another source without providing a reference to the source is considered cheating. If the unauthorized aid includes help from another student, then that student is considered to have cheated as well. Students are expected to submit assignments that are entirely their own work. A common example of cheating is to copy another person's program or homework assignment.

If a student cheats on a homework or programming assignment, then he/she will receive a grade of zero (a grade of F) for that item as will anyone assisting him/her in an unauthorized way. If a student cheats on an exam or the final or cheats more than once on an assignment, the violation will be reported to the College of Engineering Academic Integrity Committee with the recommendation of a grade of 'F' for the course, subject to the review and endorsement of the chairperson and the dean. All cases of cheating will be reported to the Director of Undergraduate Studies.

Repeated academic integrity violations may lead to dismissal from the University. To review the University's Academic Dishonesty Policy, please see section IV.F of the Student Handbook, <https://www.ncat.edu/files/pdfs/campus-life/student-handbook.pdf>

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Class Schedule

Monday, January 13 Introduction scan chapter 1	Wednesday, January 15 Programming Language History	Friday, January 17 Language Paradigms section 1.2
Monday, January 20 <i>Martin Luther King Day holiday</i> <i>(no classes)</i>	Wednesday, January 22 Machine Language COMP375 – chapter 15	Friday, January 24 Theory of languages section 2.4
Monday, January 27 Language Translation	Wednesday, January 29 Scanning section 2.2	Friday, January 31 Writing a scanner read section 2.1
Monday, February 3 Language specification section 2.1	Wednesday, February 5 Parsing section 2.3	Friday, February 7 String languages
Monday, February 10 Semantics sections 4.1 – 4.3	Wednesday, February 12 review	Friday, February 14 Exam 1
Monday, February 17 Code Generation chapter 15	Wednesday, February 19 Optimization chapter 17	Friday, February 21 Parameter passing
Monday, February 24 Linking	Wednesday, February 26 Memory layout	Friday, February 28 Garbage collection section 3.2.4
Monday, March 2 <i>Spring Break</i> <i>(no classes)</i>	Wednesday, March 3 <i>Spring Break</i> <i>(no classes)</i>	Friday, March 5 <i>Spring Break</i> <i>(no classes)</i>
Monday, March 9 Object Oriented programming sections 10.1 - 10.2	Wednesday, March 11 Inheritance section 10.3	Friday, March 13 Binding chapter 3
Monday, March 16 Dynamic Binding section 3.6	Wednesday, March 18 review	Friday, March 20 Exam 2
Monday, March 23 Haskell sections 11.1 – 11.2	Wednesday, March 25 Haskell	Friday, March 27 Haskell
Monday, March 30 Haskell	Wednesday, April 1 Haskell	Friday, April 3 Haskell
Monday, April 6 Prolog section 12	Wednesday, April 8 Prolog	Friday, April 10 <i>Good Friday</i> <i>(no classes)</i>
Monday, April 13 Types chapter 7	Wednesday, April 15 Drag & drop programming	Friday, April 17 Scripting Languages chapter 14
Monday, April 20 review	Wednesday, April 22 Writing parallel programs	Friday, April 24 Parallel languages
Monday, April 27 Exam 3	Wednesday, April 29 final review	
Tuesday, May 5 10:30AM Final Exam		

The calendar is subject to change at the discretion of the Instructor.