CSC 362.001: Computer Systems

Professor: Richard Fox  Phone: (859) 572-5334
Semester: Spring 2019  Office: GH 444
Class Meeting Time: MWF 10:00 am - 10:50 am  Email: foxr@nku.edu
Class Meeting Place: GH 250  Web: http://www.nku.edu/~foxr/
Office Hours: MWF 9:00 – 9:50 am, MWF 12:00 pm – 12:50 pm, and by appointment

Textbooks:
The instructor will provide materials for IBM PC Assembly Language.

Prerequisites and Credits:
C- or better in CSC 360. 3 Credit hours. This course is required for CSC majors. CSC 362 or CSC 364 is required for all Computer Science minors.

Course Topics:

Student Learning Outcomes:
By the end of this course, students will learn to:
- understand the internal workings of the computer at both a hardware and software level including binary representations and binary arithmetic operations
- apply Boolean logic to create digital circuits to solve various computer functions
- understand the role and structure of the CPU, memory, I/O system, bus and interrupt system including the fetch-execute cycle, memory hierarchy and the role of synchronization
- understand and apply a basic machine instruction set and IBM PC assembly to see how machine these activities are described at a programming level
- understand and apply the C programming language, with particular emphasis on pointers and arrays, so that the student can understand the interplay between high-level language constructs and how those instructions are carried out at the machine language and hardware levels
This course prepares students for more advanced topics in Computer Architecture and Operating Systems.

Course Materials:
This course uses the instructor’s website (not Canvas!). See http://www.nku.edu/~foxr/CSC362. This site will contain all lecture notes (PowerPoint slides), handouts/assignments, sample programs and sample problem solutions. Download these items at your leisure. It is your responsibility to keep an eye on this website during the semester for new material.
Student Assessment:
Student grades will be determined by the student’s performance on:

- 4 homework assignments to test the student’s understanding of concepts
- 6 programming assignments to test the student’s ability to solve problems in C and assembly language
- 4 exams to test the student’s ability to solve problems and understand concepts

The combined homework and programming assignments are worth 50% of your grade. Three midterm exams are worth a combined 33% of your grade. The final exam is worth the remaining 17% of your grade. The grading scale (subject to curve if necessary) is:

- A: 100-93
- A-: 92-90
- B+: 89-87
- B: 86-83
- B-: 82-80
- C+: 79-77
- C: 76-73
- C-: 72-70
- D+: 69-67
- D: 66-60
- F: 59-0

Mid-term grades will be posted to myNKU by Tuesday, March 19. The grade is not a predictor of your final grade but merely your grade at that point of the semester. The last date to drop with a grade of W is Monday, March 25.

Schedule of topics and readings:
See http://www.nku.edu/~foxr/CSC362/readings.pdf including final exam information.

Homework and Programming Information and Policies:
There will be a number of homework and programming assignments. Due dates will be provided when each assignment is provided to the class. All assignments are due at the beginning of the class period of the due date. Late assignments will be accepted with a penalty of 10% per day late, however, homework assignments will not be accepted once the answer key for that homework has been provided to the students (on some assignments, answer keys will be passed out the day the assignments are due, thus prohibiting late submissions). All homework assignments must be word processed (figures and other answers that would be awkward to type may be hand drawn/written). Please submit your assignments as hardcopies (not email) in person or by having someone reliable drop it off if you cannot attend class. Email submissions are only allowed in emergencies. If submitted by email, it must be received at least 2 hours before class time to be considered on time. Make sure your name appears at the top of any assignment (in programs, place it in comments). All homework and programming assignments are individual assignments meaning that students should work alone at all times except when seeking clarification. If the instructor suspects students of copying off of each other or working together, the instructor will give a grade of 0 on those assignments and warn the students. A second offense will cause disciplinary action.

Programming assignments will be in C and Intel assembly language. The assembly programs will be embedded from within your C code, so you will not need any special software other than a Windows version of C (or C++), such as Visual C++ or Visual Studio.Net. Mac users can use Clang or Xcode.

Attendance Policy:
NKU students are expected to attend the first scheduled class session of each course for which they are enrolled. Faculty may report students who do not attend the first class meeting of the semester/session as non-attending if they have not contacted the faculty member. Faculty are compelled to report students who fail to attend the first two classes as non-attending if they have not contacted the faculty member. All non-attendance for the full semester must be reported by the end of the add/drop date but should be reported as soon as two classes are missed. Students who know they will be absent must contact their instructor(s) prior to the first class meeting to explain their absence and request to remain enrolled in the course. You will receive no further warnings! Attendance will not be taken after the first week.

It is up to the student to attend class regularly and to determine what materials were missed in the event of an absence. If an assignment is due on a date that the student is absent, it is the student’s responsibility to make sure that the instructor receives the assignment prior to the beginning of class time (whether by Email or having someone reliable drop off the assignment to the instructor in his office, mailbox or classroom).
Grade Appeal:

Please see the Code of Student Rights and Responsibilities Section V: Academic Policies & Processes for any final grade appeal. The specifics of the process are detailed in subsection G: Student Academic Grade Appeal. https://inside.nku.edu/scra/information/students/rights-responsibilities.html

Credit Hour Policy Statement:

In accordance with federal policy, NKU defines a credit hour as the amount of work represented in the achievement of student learning outcomes (verified by evidence of student achievement) that reasonably approximates one hour (50 minutes) of classroom instruction and a minimum of two hours of out-of-class student work. For every course credit hour, a typical student should expect to spend at least three hours per week of concentrated attention on course-related work including, but not limited to, class meeting time, reading, reviewing, organizing notes, studying and completing assignments. At least an equivalent amount of time is expected for other academic activities such as online courses, laboratory work, internships, practica, studio work and other academic work leading to the award of credit hours.

Estimates of the time required for a typical student to complete course expectations are as follows:

- In-class: 3 hours/week * 15 weeks = 45 hours/semester
- Reading/ Studying: 3 hours/week * 15 weeks = 45 hours/semester
- Assignments: 10 assignments * 6-8 hours apiece = 60-80 hours/semester
- Total: 150-170 hours/semester

(approx. 10-11 hours/week)

The amount of effort toward this class averages 10-11 hours per week (including 3 hours in class), so you are expected to apply some 7-8 hours outside of class. Students who do not spend an appropriate amount of time on this course will most likely obtain a poor grade and perhaps not pass the class.

Student Honor Code:

This Student Honor Code [the "Honor Code"] is a commitment by students of Northern Kentucky University, through their matriculation or continued enrollment at the University, to adhere to the highest degree of ethical integrity in academic conduct. It is a commitment individually and collectively that the students of Northern Kentucky University will not lie, cheat, or plagiarize to gain an academic advantage over fellow students or avoid academic requirements.

The purpose of the Honor Code is to establish standards of academic conduct for students at Northern Kentucky University and to provide a procedure that offers basic assurances of fundamental fairness to any person accused of violations of these rules. Each Northern Kentucky University student is bound by the provisions of the Honor Code and is presumed to be familiar with all of its provisions. Students also should aspire to conduct themselves in a manner that is consistent with the highest degree of ethical integrity in all matters, whether covered in the Honor Code or not. The success of this commitment begins in the diligence with which students uphold the letter and the spirit of the Honor Code. Students may view the complete honor code at https://inside.nku.edu/scra.html#policies.

Classroom Expectations:

Cellphones must be on vibrate (PLEASE!) You may leave the classroom at any time other than during exams as long as you do so quietly. If you come in late, please be quiet. During an exam, you may leave to answer your phone, use the facilities, etc, but please inform the instructor before leaving. While the instructor is lecturing, please be quiet. Do not engage other students in conversation. You may ask questions at any time during a lecture. Please do ask questions and please ask for more example problems if you feel you need them. You are encouraged to bring a laptop to class if you feel it will help you.
Student Evaluation of Instructor and Course:

Northern Kentucky University takes Instructor and Course Evaluations very seriously as an important means of gathering information for the enhancement of learning opportunities for its students. It is an important responsibility of NKU students as citizens of the University to participate in the instructor and course evaluation process. During the week prior to the final exam, you will be asked to reflect upon what you have learned in this course, the extent to which you have invested the necessary effort to maximize your learning, and the role your instructor has played in the learning process. It is very important that you complete the online evaluations with thoughtfully written comments.

Student evaluations of courses and instructors are regarded as strictly confidential. They are not available to the instructor until after final grades are submitted, and extensive precautions are taken to prevent your comments from being identified as coming from you. Students who complete an evaluation for a particular course (or opt out of doing so in the evaluation) will be rewarded for their participation by having access to their course grade as soon as that grade is submitted by the instructor. On the other hand, any student who does not complete the course evaluation (or opt out of doing so in the evaluation) should expect to incur a two week delay in access to his or her course grade beyond the university's official date for grade availability. To complete online evaluations go to http://eval.nku.edu. Click on "student login" and use the same USERNAME and PASSWORD as used on campus.

In addition, you should be aware of:

- Evaluations can affect changes in courses. Evaluations without comments are less valuable and less credible than those filled out thoughtfully. Comments that are expressed well are more effective than those that are not.
- Positive feedback is just as important as criticism. Moreover, negative evaluations without any explanation or specifics are not especially useful.
- Once grades are submitted, all evaluations are read not only by the instructor, but also by the instructor’s department chairperson.
- Evaluations not only provide feedback to your instructor, but also provide information to the department chair for use in performance evaluations. This information affects reappointments, promotions, salaries, and teaching assignments.

Student Retention and Accommodations Due to Disability:

Students experiencing roadblocks to academic success may seek assistance from the Learning Assistance Programs (LAP). Financial, personal, and social concerns sometimes interfere with the dedicated focus needed to be successful in college. LAP helps students connect to academic and support services, create individual learning plans, and advance successfully towards graduation. Services including Norse Advising, student support services, testing and disability services, the math center, the writing center and tutoring. More information is available at https://inside.nku.edu/plus.html. Call 859 572-5475 for an appointment or stop by University Center 170. You can apply for a tutoring session through TutorTrac at https://tutortrac.nku.edu/tracweb40/default.html. In addition to the resources available at LAP, STEM ambassadors lead peer-study sessions every Wednesday evening in GH 230 from 7 – 9 pm.

The University is committed to making reasonable efforts to assist individuals with disabilities in their efforts to avail themselves of services and programs offered by the University. To this end, Northern Kentucky University will provide reasonable accommodations for persons with documented qualifying disabilities. If you have a disability and feel you need accommodations in this course, you must present a letter to me from the Disability Programs and Services Office (SU 303), indicating the existence of a disability and the suggested accommodations. More information can be found at http://disability.nku.edu.
**Diversity and Conduct:**

Diversity describes an inclusive community of people with varied human characteristics, ideas, and world views related, but not limited, to race, ethnicity, sexual orientation, gender, religion, color, creed, national origin, age, disability, socio-economic status, geographical region, or ancestry. Institutions that value diversity provide a supportive environment that respects those human differences. It is our responsibility as citizens of the NKU community to promote and value a campus environment and classroom climate that is safe, fair, respectful, and free from prejudice. Northern Kentucky University is committed to fostering a safe and inclusive educational and work environment free from sexual misconduct, including sexual assault, non-consensual sexual contact, non-consensual sexual intercourse, sexual exploitation, sexual harassment, dating and intimate partner violence, relationship and domestic violence, stalking and gender-based bullying. For more information please see: https://inside.nku.edu/titleix/sexual-misconduct-policy.html

**Observation of Religious Holidays:**

NKU values diverse religious perspectives and beliefs and recognizes that religious practice is for many individuals an important element of personal identity, intellectual development and psychological well-being, and, in many cases, is inseparable from cultural identity. As the diversity of our community has increased, additional religious holidays now affect a significant number of students. Consistent with our commitment to creating a diverse and inclusive community, Northern Kentucky University believes that every reasonable effort should be made to allow members of the NKU community to observe their holidays without jeopardizing the fulfillment of their academic obligations. NKU students who are unable to attend classes or participate in any examination, study or work requirement on some particular day(s) because of his or her religious belief must submit a formal request to the instructor within 3 weeks of the beginning of the semester so appropriate arrangements can be made.

Any questions? Please ask!

The instructor reserves the right to alter the syllabus if circumstances dictate.