Instructor: Bob Roos
Office: Alden Hall 106

Office Hours:
Mon., 10:00 a.m.–11:30 a.m.
Tues. 2:30 p.m.–4:30 p.m.
Weds., 10:00 a.m.–11:30 a.m., 1:30–3:30 p.m.
Fri., 1:30 p.m.–3:30 p.m.
and by appointment

Go to [http://cs.alleghehny.edu/sites/rroos/schedule.html](http://cs.alleghehny.edu/sites/rroos/schedule.html) to schedule office hour appointments. To schedule an appointment outside my regular office hours, please email me with your request.

Office phone: 814-332-2883 (on campus: extension 2883).

Email: rroos@allegheny.edu

Time and Place:
Lecture: TuTh 9:30–10:45 a.m., Alden 101
Lab: M 2:30–4:20 p.m., Alden 101

Final Exam: Exam Group C—Thu., Dec. 10, 7 p.m.–10 p.m.

Textbooks:

Course Description. Here is the description printed in the College Catalogue:

An introduction to the basic organization and operation of computers including logical structure, hardware components, machine and assembly language, and computer system performance. Topics include internal representation of information, instruction set architecture, instruction types and addressing techniques, computer arithmetic, memory
systems, design and operation of the control unit, input/output devices and interfaces, assembly language and translation techniques, and modern architectural enhancements such as pipelining and multiprocessors. Special emphasis is on systems programming and assignments in a particular assembly language. One laboratory per week. **Prerequisite:** Computer Science 112.

**Learning Objectives:** By the end of this course, you should:

- understand the basic components of a computer, particularly the processor and memory—how they are designed, how they operate
- be able to trace the steps taken between compiling a line of code and seeing the results of that code’s execution
- be able to explain how computer performance is measured and how this performance is affected by design decisions at many levels
- know the rudiments of programming at the machine and assembly levels
- gain proficiency in programming in C

**Grading:** (All percentages are approximate!)

- In-class exercises approx. 10%
- Homework (programming assignments and reports) approx. 30%
- Regular quizzes on readings approx. 10%
- Two mid-term exams approx. 20% (10% each)
- Final Exam (Exam Code C—Thu., 10 December, 7 p.m.–10 p.m.) approx. 15%
- Final Project approx. 10%
- Attendance, etc. approx. 5%

**Attendance:**

If you miss class for any reason (yes, even sleeping in or forgetting what day it is!), *please explain your absence to me (in writing, e.g., an email) as soon as you are able.* Frequent or prolonged absences due to illness should be documented by the Health Center, the Dean of Students’ Office, or the office of Student Disability Services. If other circumstances arise that are beyond your control, please contact the Dean of Students office and explain the situation to them so that they can notify the instructors of your courses. Even if your reason for missing class would not be considered a justifiable excuse, please write to me and explain any absences.

**Late Policy:** Every assignment has a due date and time. Failure to hand in an assignment by the deadline will result in a late submission penalty. Assignments handed in within one week after the deadline will receive automatic grade reductions of 15% (in addition to any points deducted for errors). Assignments handed in within two weeks after the deadline, but not within one week, will receive automatic grade reductions of 30% (in addition to any points deducted for errors).
Assignments will not be accepted more than two weeks past the deadline unless you can provide clear evidence of extenuating circumstances.

Late submission of assignments creates serious fairness issues for the members of the class who hand in their work on time; it is not fair or reasonable for someone to receive a non-zero grade on an assignment that is handed in weeks after everyone else has submitted their work. Any extenuating circumstances must be documented through the Learning Commons, Counseling Center, Dean of Students office, Health Center, or other appropriate source.

Email:

“The use of email is a primary method of communication on campus. . . . All students are provided with a campus email account and address while enrolled at Allegheny and are expected to check the account on a regular basis.” [p. 9, The Compass Student Handbook 2015–2016]

I will sometimes need to send out announcements to the class with things such as clarifications, changes in the schedule, or other matters. I will use your Allegheny College email account to do this. It is your responsibility to check your email (I suggest at least once a day) and to make certain that your email is working correctly (able to send and receive messages).

Special Needs and Disabilities:

Students with disabilities who believe they may need accommodations in this class are encouraged to contact Student Disability Services (SDS) at (814) 332-2898. SDS is part of the Learning Commons and is located in Pelletier Library. Please do this as soon as possible to ensure that such accommodations are implemented in a timely fashion.

Honor Code:

All students enrolled at Allegheny College are bound by the Honor Code. It is expected that your behavior will reflect that commitment. To this end, we expect that you will adhere to the following Department Policy:

Department of Computer Science Honor Code Policy

It is recognized that an important part of the learning process in any course, and particularly in computer science, derives from thoughtful discussions with teachers, student assistants, and fellow students. Such dialogue is encouraged. However, it is necessary to distinguish carefully between the student who discusses the principles underlying a problem with others, and the student who produces assignments that are identical to, or merely variations on, someone else’s work. It will therefore be understood that all assignments submitted to faculty of the Department of Computer Science are to be the original work of the student submitting the assignment, and should be signed in accordance with the provisions of the Honor Code. Appropriate action will be taken when assignments give evidence that they were derived from the work of others.

In keeping with the wishes of the Honor Committee, I require that each student write the following on assignments that are turned in, along with his or her signature:

This work is mine unless otherwise cited.
Tentative Schedule for CMPSC 210, Fall 2015

Readings denoted “PH” are from the Patterson & Hennessy book; “KR” refers to the Kernighan & Ritchie book. Roughly, we will cover chapters 1 through 5 in PH and chapters 1 through 5 in KR in a fair amount of detail. Topics from later chapters will be covered as time and class interest permit.

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Topics/Readings</th>
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<tbody>
<tr>
<td>1</td>
<td>25–31 Aug</td>
<td>Introduction; C programming (PH 1.1–1.4; KR 1.1–1.5)</td>
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<tr>
<td>2</td>
<td>1–7 Sep</td>
<td>Performance; C programming (PH 1.5–1.7, 1.10; KR 1.7–1.9)</td>
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<td>3</td>
<td>8–14 Sep</td>
<td>MIPS; binary and hex; more C (PH 2.1–2.5; KR 2.1–3.8)</td>
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<td>4</td>
<td>15–21 Sep</td>
<td>MIPS (PH 2.6–2.9; KR 4.1–4.2, 4.8–4.11)</td>
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<td>5</td>
<td>22–28 Sep</td>
<td>MIPS, C, catch-up/review (PH 2.12–2.14; KR 5.1–5.6)</td>
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<td>6</td>
<td>29 Sep–5 Oct</td>
<td>Computer arithmetic (PH 3.1–3.5)</td>
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<td><strong>FIRST EXAM ON THU 1 OCTOBER</strong></td>
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<td>7</td>
<td>6–15 Oct</td>
<td>Arithmetic; floating point; digital logic (PH 3.1–3.5)</td>
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<td><strong>FALL BREAK 12–13 OCTOBER</strong></td>
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<td>8</td>
<td>19–22 Oct</td>
<td>Digital logic, data path (PH App. B; 4.1–4.4)</td>
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<td>9</td>
<td>26 Oct–2 Nov</td>
<td>Catch-up; parallelism (PH excerpts from 4.5–4.10)</td>
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<td><strong>Tue 27 Oct: GATOR DAY! WATCH FOR ANNOUNCEMENTS</strong></td>
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<td>10</td>
<td>3–9 Nov</td>
<td>Parallelism (PH excerpts from 4.5–4.10)</td>
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<td><strong>SECOND EXAM ON THU 5 NOVEMBER</strong></td>
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<tr>
<td>11–14</td>
<td>10 Nov–7 Dec</td>
<td>Advanced topics and final project (TBA)</td>
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<td>8 Dec</td>
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<td>Last class—project presentations, review</td>
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<td><strong>Thu 10 Dec, 7 p.m. FINAL EXAM</strong></td>
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