Instructor

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Office hours: T 9:00-10:50, F 10:00-11:50, or by appointment

Course information

Credit hours: 4  
Lecture times:  
   305: MWF 3:00-3:50 in NSC 218.

Recitation times:  
   305 A1: M 1:00-1:50 in Norton 213  
   305 A2: W 12:00-12:50 in Park 146  
   305 A3: R 5:00-5:50 in Bell 337

WWW: http://www.cse.buffalo.edu/faculty/alphonce/Courses/Spring2009/cse305/

Course description

This course examines the various components of programming languages so students will understand  
the choices that have been made by programming language designers, and how those choices affect  
how procedures may be expressed and how data are conceptualized. Topics generally include the  
nature of variables, types, expressions, control structures, subprograms, concurrency, and exceptions;  
syntax and semantics. The course also discusses different programming paradigms, such as functional,  
logic, procedural and object-oriented.

More detailed information on lecture topics and required readings is available on the course web site.  
The course covers topics from the following knowledge units from ACM’s CC2001 curriculum document:  
PL1 Overview of programming languages, PL2 Virtual machines, PL3 Introduction to language translation,  
PL4 Declarations and types, PL5 Abstraction mechanisms, PL6 Object-oriented programming, PL7  
Functional programming, PL9 Type systems, PL10 Programming language semantics, and PL11  
Programming language design.

Course objectives

The main objectives of the this course, together with the primary mechanisms by which your achievement  
of these objectives will be assessed, are described below.

- After successful completion of this course you will have a basic understanding of the mathematical  
  underpinnings of the programming language paradigms discussed. (EXAMINATION)
- You will be able to evaluate the suitability of a programming language for a particular task based  
  on its fundamental functionality. (HOMEWORK, EXAMINATION)
• You will be able to exploit a knowledge of the essential structure of programming languages to quickly learn a new programming language. (HOMEWORK)
• You will also understand how properties of a programming language influence its implementation. (EXAMINATION)
• Finally, you will deepen your programming experience through the completion of non-trivial programming assignments in a selection of programming languages from the different paradigms we discuss. (HOMEWORK)

Prerequisites

You must have passed CSE 250 with a grade of C- or better and be an admitted CSE student, or have an equivalent background and receive permission from the instructor.

Textbook and Materials

There is one required textbook for this course. You are expected to have it.


Additional reading material and language reference materials will be distributed or made available on the web site.

Computing Resources

You will be provided with a CSE undergraduate computing account. You are expected to become proficient at using the machines in the lab, the Unix system, the language compilers/interpreters, and whatever other software development tools the course requires you to use. It is your responsibility to ensure that any programs you write for this course compile using the compilers/interpreters installed on the department’s machines. Information about the CSE computing environment can be found at wiki.cse.buffalo.edu/services/

You are also required to read mail sent to your CSE e-mail account. Any e-mail communication that you send regarding this course must be sent from your CSE e-mail account or your UB e-mail account. Under no circumstances will e-mail from non-UB accounts be acknowledged or answered. You must include an informative subject line in all e-mail, and include your full name in any e-mail correspondence.

All e-mail that we send in reply to your e-mail will be sent to the address from which you sent your e-mail. Our feedback on materials you hand in electronically will be sent to your CSE e-mail account only. Since you may request re-grades of work only within a set period from the time that the feedback was provided to you, it is in your best interest to read your CSE e-mail account on a daily basis.

Course organization

The course has both a lecture component and a recitation component. Each component plays a role in helping you achieve the objectives of the course. If you do not participate fully in both you should not expect to do well in the course. Outside of the scheduled course times, both office hours and your own study times are critical components of the course.

Lectures

The conceptual and theoretical course content will be delivered primarily in the lectures, complemented by readings from the text books. You must review readings prior to attending a lecture, and you are expected to review the readings again, along with any notes you took, after the lecture.
Some of the topics will be difficult. It is therefore absolutely essential that you ask questions whenever something is said which you do not understand.

Attendance in all lectures is mandatory and is critical to your success in this course. Attendance will be taken in lecture, and will count towards your final course grade. **Lack of attendance in lecture can be grounds for failure in the course.** If you are unable to attend a lecture because of sickness or similar reasons, make sure you get the notes from a classmate. If you are out of class for an extended period of time because of sickness, notify your instructor as soon as possible, and see your instructor immediately upon your return in order to determine how to catch up. If you have missed a significant portion of the semester due to illness, it is recommended that you resign from the course.

Recitations

The recitations are an integral part of this course. **Attendance in all recitations is mandatory and is critical to the success of the course project. Attendance will be taken in recitations, and will count towards your final course grade. Lack of attendance in recitation can be grounds for failure in the course.**

Recitations will review lecture material and provide you with an opportunity to ask more detailed questions about the course material than can typically be addressed in lecture. **Some material needed to do the programming projects may be covered only in the recitations.**

Recitations do not meet in the first week of classes. Recitations meet for the first time the second week of classes.

Time outside of class

Office hours

Office hours offer you the opportunity to ask more individual questions about the course material than can typically be addressed in lecture or recitation. Both the instructor and the teaching assistant have scheduled office hours. Office hours are held on a first-come first-served drop-in basis. No appointment is necessary to attend office hours. Be aware that office hours become increasingly busy the closer it is to a project deadline. Plan your use of office hours accordingly.

Individual appointments may be arranged, if needed, as schedules allow.

Study time

In this course, as in any course, you are expected to put in additional time beyond the scheduled class times. Professors generally expect that for each credit hour a typical student will put in 2 – 3 hours of time each week outside of class. Since this is a 4 credit course that translates into 8 – 12 hours of time outside of scheduled times, each week. During this time you should review your lecture notes, attend office hours as needed, get hands-on practice applying the class material, and work on assignments. As a rough guide, you should expect to spend at least the following time working on this course, each week:

- **lectures** 3 hours
- **recitation** 1 hour
- **individual study** 3 hours
- **assignments** 5 hours
Course evaluation

The following indicates the grade breakdown which I will use in assigning grades in the course. I reserve the right to make small adjustments to the breakdown if I feel it is necessary.

Exam component (40% of final course grade)

There will be two examinations given during the semester and one final examination at the end of the term. The in-class exam schedule will be posted on the course website. The final examination will be given on a date to be specified by the University. Do not make travel plans for times during the examination period until the final examination schedule has been posted.

If you miss an examination because of sickness or similar reasons, visit a physician and obtain a note detailing the period during which you were medically incapable of taking the exam. Notify your instructor immediately via e-mail or telephone (voice mail) if you are going to miss an exam, before the exam takes place unless medically impossible. See your instructor as soon as you return to class.

If you miss an examination without a valid excuse, you will receive a zero grade for that examination. No make-up examination will be available without a valid excuse.

You must bring a valid form of picture ID with you to each examination (a UB Card will suffice).

There are two options for calculating your score for the exam component of the course:

- using the first option the in-class exams count for 20% of your grade (10% each), while the final exam counts for 20%.
- using the second option the final exam counts for 40% of your grade.

The option which gives you the highest score in the course will be used automatically.

You must attempt all in-class exams in order for the final-exam only option to be available to you. If you do not write all in-class exams, you cannot make use of the final-exam only option.

The motivation for having two grading options available is to ensure that you are not penalized if you had a rough start in the course, but managed to do really well on the final exam. If you do poorly on the in-class exams, you can still do well in the course by demonstrating that you have learned the material on the final exam. Of course, if you do poorly on the in-class exams, this means you are playing without a safety net.

The following table summarizes the grading of the exam component of the course:

<table>
<thead>
<tr>
<th></th>
<th>Option #1</th>
<th>Option #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>in-class exams</td>
<td>20%</td>
<td>0%</td>
</tr>
<tr>
<td>final exam (cumulative)</td>
<td>20%</td>
<td>40%</td>
</tr>
</tbody>
</table>

A necessary but not sufficient condition for receiving a passing grade in the course is having a passing exam component grade.

Attendance component (8% of final course grade)

Attendance will be taken in both lecture and recitation. Attendance sheets will be circulated. It is your responsibility to ensure that you sign. Lecture and recitation attendance are graded separately (4% each). Your grade for each will be calculated as follows:

<table>
<thead>
<tr>
<th>Attendance</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero or one absence</td>
<td>4</td>
</tr>
<tr>
<td>Two absences</td>
<td>3</td>
</tr>
<tr>
<td>Three absences</td>
<td>2</td>
</tr>
<tr>
<td>Four absences</td>
<td>1</td>
</tr>
<tr>
<td>Five or more absences</td>
<td>0 (and possible failure in the course)</td>
</tr>
</tbody>
</table>
Homework component (52% of final course grade)

Regular homework assignments will be given throughout the semester. Homeworks will include a mixture of theoretical and applied (programming) questions. Homeworks will be weighted equally. A necessary but not sufficient condition for receiving a passing grade in the course is having a passing homework component grade.

Late policy for homework submissions

Late homework submissions are not accepted. However, you have six late days to use throughout the semester. Each late day used extends the deadline for your submission by 24 hours.\(^1\) You may use the late days as you see fit. You can use more than one late day for a given submission (e.g. if you save all your late days for the last homework, you can extend the deadline for that homework by six days). Unused late days do not benefit you.

Regrading

If you have a question about the grading of any piece of work, first consult with the teaching assistant who graded your work. If you cannot resolve your questions with the teaching assistant, you should consult with the instructor of the course.

Any questions about the grading of a piece of work must be raised within one week of the date that the work was returned by the teaching assistant or the instructor. In other words, if you do not pick up your work in a timely fashion, you may forfeit your right to question the grading of your work.

Incomplete (I) grades

We will follow the UB Undergraduate Catalog Statement on Incomplete Grades, found in the Undergraduate Catalog.

Generally, incomplete ("I") grades are not given. However, very rarely, circumstances truly beyond a student's control prevents him or her from completing work in the course. In such cases the instructor can give a grade of “I". The student will be given instructions and a deadline for completing the work, usually no more than 30 days past the end of the semester. University and department policy dictate that “I” grades can be given only if the following conditions are met:

- An Incomplete will only be given for missing a small part of the course.
- An Incomplete will only be given when the student misses work due to circumstances beyond his/her control.
- An Incomplete will only be given when the student is passing the course except for the missed material.
- An Incomplete is to be made up with the original course instructor within the time specified by the appropriate University regulation (see appropriate document above), and usually within the following semester.
- An Incomplete will not be given to allow the student to informally retake the entire course, and have that grade count as the grade of the original course.

Incompletes can not be given as a shelter from poor grades. **It is your responsibility to make a timely resignation from the course if you are doing poorly for any reason.** The last day to resign the course is Friday, March 27, 2009.

\(^1\) For example, if a homework is due on a Friday at 11:59 PM, a 24 hour extension makes it due on Saturday at 11:59 PM.
Letter grades

The following table indicates the number-to-letter grade mapping I will use to assign final grades at the end of the course. The Grade points column is included for your convenience only, and is not official information. The official mapping can be found on in the Undergraduate Catalog.

<table>
<thead>
<tr>
<th>Percentage score</th>
<th>Letter grade</th>
<th>Grade points</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100</td>
<td>A</td>
<td>4.0</td>
</tr>
<tr>
<td>85-89</td>
<td>A-</td>
<td>3.67</td>
</tr>
<tr>
<td>80-84</td>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>75-79</td>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td>70-74</td>
<td>B-</td>
<td>2.67</td>
</tr>
<tr>
<td>65-69</td>
<td>C+</td>
<td>2.33</td>
</tr>
<tr>
<td>60-64</td>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td>55-59</td>
<td>C-</td>
<td>1.67</td>
</tr>
<tr>
<td>0-54</td>
<td>F</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Newsgroup

There is a newsgroup, sunyab.cse.305, for this course. You must learn how to read news and subscribe to this newsgroup. You are expected to read the newsgroup on a daily basis. There will often be important material posted there, such as supplementary course notes, homework and sample exam questions, and occasionally late breaking news. You may post general course related articles to the newsgroup. Use discretion in posting articles related to homework assignments: when in doubt, e-mail the T.A. or instructor first.

General Notes

If you don’t understand something covered in class, ask about it right away. The only silly question is the one which is not asked. If you get a poor mark on an assignment, quiz, or exam, find out why right away. Don’t wait a month before asking. The instructor and teaching assistants are available to answer your questions. Don’t be afraid to ask questions, or to approach the instructor or T.A. in class, during office hours, in the hallways, or through e-mail.

This course is intended to be hard work, but it is also intended to be fun. Play with the computer, and have fun with the neat and elegant programming ideas covered in this course. We think computer science is interesting and exciting, and we want to convince you of this. Work hard, but have fun!

Disabilities

If you have a diagnosed disability (physical, learning, or psychological) that will make it difficult for you to carry out the course work as outlined, or that requires accommodations such as recruiting note-takers, readers, or extended time on exams or assignments, you must consult with the Office of Disability Services (25 Capen Hall, Tel: 645-2608, TTY: 645-2616, Fax: 645-3116, http://www.student-affairs.buffalo.edu/ods/). You must advise your instructor during the first two weeks of the course so that we may review possible arrangements for reasonable accommodations.

Counseling Center

Your attention is called to the Counseling Center (645-2720), 120 Richmond Quad. The Counseling Center staff are trained to help you deal with a wide range of issues, including how to study effectively and how to deal with exam-related stress. Services are free and confidential. Their web site is http://www.student-affairs.buffalo.edu/shs/ccenter/
Distractions In The Classroom - Behavioral Expectations

The following is the text of a policy adopted by the Faculty Senate on 5/2/2000. You are expected to know and adhere to this policy.

OBSTRUCTION OR DISRUPTION IN THE CLASSROOM - POLICIES
UNIVERSITY AT BUFFALO

To prevent and respond to distracting behavior faculty should clarify standards for the conduct of class, either in the syllabus, or by referencing the expectations cited in the Student Conduct Regulations. Classroom "etiquette" expectations should include:

- Attending classes and paying attention. Do not ask an instructor in class to go over material you missed by skipping a class or not concentrating.
- Not coming to class late or leaving early. If you must enter a class late, do so quietly and do not disrupt the class by walking between the class and the instructor. Do not leave class unless it is an absolute necessity.
- Not talking with other classmates while the instructor or another student is speaking. If you have a question or a comment, please raise your hand, rather than starting a conversation about it with your neighbor.
- Showing respect and concern for others by not monopolizing class discussion. Allow others time to give their input and ask questions. Do not stray from the topic of class discussion.
- Not eating and drinking during class time.
- Turning off the electronics: cell phones, pagers, and beeper watches.
- Avoiding audible and visible signs of restlessness. These are both rude and disruptive to the rest of the class.
- Focusing on class material during class time. Sleeping, talking to others, doing work for another class, reading the newspaper, checking email, and exploring the internet are unacceptable and can be disruptive.
- Not packing bookbags or backpacks to leave until the instructor has dismissed class.
Academic Integrity

The academic degrees and the research findings produced by our Department are worth no more than the integrity of the process by which they are gained. If we do not maintain reliably high standards of ethics and integrity in our work and our relationships, we have nothing of value to offer one another or to offer the larger community outside this Department, whether potential employers or fellow scholars.

For this reason, the principles of Academic Integrity have priority over every other consideration in every aspect of our departmental life, and we will defend these principles vigorously. It is essential that every student be fully aware of these principles, what the procedures are by which possible violations are investigated and adjudicated, and what the punishments for these violations are. Wherever they are suspected, potential violations will be investigated and determinations of fact sought. In short, breaches of Academic Integrity will not be tolerated.

Departmental Statement on Academic Integrity in Coding Assignments and Projects

The following statement further describes the specific application of these general principles to a common context in the CSE Department environment, the production of source code for project and homework assignments. It should be thoroughly understood before undertaking any cooperative activities or using any other sources in such contexts.

All academic work must be your own. Plagiarism, defined as copying or receiving materials from a source or sources and submitting this material as one’s own without acknowledging the particular debts to the source (quotations, paraphrases, basic ideas), or otherwise representing the work of another as one’s own, is never allowed. Collaboration, usually evidenced by unjustifiable similarity, is never permitted in individual assignments. Any submitted academic work may be subject to screening by software programs designed to detect evidence of plagiarism or collaboration. It is your responsibility to maintain the security of your computer accounts and your written work. Do not share passwords with anyone, nor write your password down where it may be seen by others. Do not change permissions to allow others to read your course directories and files. Do not walk away from a workstation without logging out. These are your responsibilities. In groups that collaborate inappropriately, it may be impossible to determine who has offered work to others in the group, who has received work, and who may have inadvertently made their work available to the others by failure to maintain adequate personal security. In such cases, all will be held equally liable.

These policies and interpretations may be augmented by individual instructors for their courses. Always check the handouts and web pages of your course and section for additional guidelines.

Departmental Policy on Violations of Academic Integrity

Any student accused of a violation of academic integrity will be so notified by the course director. An informal review will be conducted, including a meeting between these parties. After this review and upon determination that a violation has occurred, the following sanctions will be imposed. It is the policy of this department that, in general, any violation of academic integrity will result in an F for the course, that all departmental financial support including teaching assistantship, research assistantship or scholarships be terminated, that notification of this action be placed in the student’s confidential departmental record, and that the student be permanently ineligible for future departmental financial support. A second violation of academic integrity will cause the department to seek permanent dismissal from the major and bar from enrollment in any departmental courses. Especially flagrant violations will be considered under formal review proceedings, which may in addition to the above sanctions result in expulsion from the University.
I, ___________________________ (PRINT name), acknowledge that I have read and understood the syllabus for this course, CSE 305 Introduction To Programming Languages.

I also acknowledge that I understand the definition of academic integrity as outlined in the syllabus, and that I will minimally receive a grade of F in the course if I am found to have breached academic integrity.

Signature: ___________________________    Date: ________________