instructor: Professor Johan Walden
office: F655
email: walden@haas.berkeley.edu
web: http://www.haas.berkeley.edu/faculty/walden.html

class time: Saturdays, 10 a.m. – 4 p.m. (except first class, which ends at 5 p.m.).

assistant instructor: Dave Klein
email: MFE.CPP@gmail.com
office hours: Tuesdays, 4:00 – 5:00 p.m. & Thursdays, 4:00 – 5:00 p.m.

gsi: Sunny Kanugo
email: MFE.CPP@gmail.com

overview: This course offers an introduction to C++ programming to incoming MFE students. Students do not need to have a background in programming to succeed in the course, but must be prepared to spend extensive time outside of the classroom to do assignments and exercises. The format of the course is a combination of lectures and exercises. There are also five mandatory assignments (see below).

There are nine lectures. The first six cover general programming in C++. The last three lectures provide an introduction to object oriented programming (OOP), available external libraries, and also an introduction to binomial option pricing to help students get started with their assignments. The course material consists of comprehensive lecture notes, which will be available for download. Additional text books are suggested below for the interested reader. Prata and Horton are introductions, whereas Stroustrup is more advanced (a “bible” for advanced students). Throughout the course, references to material where students can self-study concepts that we do not have time to cover in class will be given.
suggested texts:  

also required:  
A laptop with Visual C++ 2008 Express Edition installed. Please use the 2008 edition (i.e., NOT the 2010 edition) since it is better suited for educational purposes. Bring the laptop to class. Detailed instructions for installing Visual C++, compiling programs and running programs are given in the first assignment.

We strongly recommend that you use the Visual C++ environment. This is the environment we will use in class, and for which GSI support can be given. You are allowed, however, to use other C++ compilers if you wish.

homepage:  
We will be using bSpace. A few custom features may be available only at the instructor’s website. To access it, go to: http://faculty.haas.berkeley.edu/walden/HaasWebpage/haashomepage_003.htm.

attendance:  
For students who plan to attend lectures, please attend all classes and do not arrive late. If you cannot make it to class, please inform the instructor with a short email, beforehand if possible.

assignments:  
There are five mandatory assignments. It is extremely important that students complete these, since the only way to learn to learn programming is through extensive hands-on practice. Assignment 1 is due at the beginning of the first lecture. Most students should be able to complete this assignment on their own. For students who run into trouble, the GSI will be on duty the week before the course begins, and there will be a lab-session scheduled on the weekend before the course starts. Assignment 5 is a quite extensive project assignment, so students should plan accordingly.

Assignments should be submitted electronically. Detailed instructions for what is to be submitted are provided on the first page of each assignment. Should you choose (against our recommendation) to use another compiler than the Visual C++ compiler, you should contact the GSI to get instructions about what needs to be submitted.

grades:  
Pass or Fail. Grades are exclusively based on the completed assignments.

exam:  
There is no exam.

ethics and etiquette:  
We ask students to refrain from behavior that has been demonstrated to interfere with a positive classroom experience. This especially includes holding any type of side conversation (voice, electronic, etc.) and using laptops to surf the Web, check e-mail, etc.
lecture plan: For simplicity, topics and readings are presented as full lectures. Some topics may run over to the next lecture. Consequently, we may fall behind the listed schedule a bit at some points and then catch up soon thereafter.

January 22, 2011  Lab: Opportunity for students to get hands-on help with Assignment 1.  GSI Session 1

January 29, 2011  Due: Assignment 1

January 29, 2011  topic: Introduction to computers, programming and algorithms. Basic I/O, variables, simple arithmetics, conditional statements.  Lecture 1  2 hours

January 29, 2011  topic: Loops and functions. Scope, break, continue. Call by value/call by reference.  Lecture 2  2 hours


February 5, 2011  Due: Assignment 2

February 5, 2011  topic: Arrays, strings and pointers. Static versus dynamic memory allocation, multidimensional arrays  Lecture 4  2 ½ hours

February 5, 2011  topic: Introduction to classes and advanced datastructures. methods and attributes, public, private and protected, constructors, destructors, this pointer, file structures, operator overloading.  Lecture 5  2 ½ hours

February 12, 2011  Lab: Opportunity for students to get hands-on help with Assignment 3.  GSI Session 2

February 19, 2011  Due: Assignment 3

February 19, 2011  topic: File I/O. Exercises on classes and data structures. fstream, read, write, close, good. More on bond valuation. Introduction to Assignment 4.  Lecture 6  2 ½ hours

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<thead>
<tr>
<th>Date</th>
<th>Lab:</th>
<th>Due:</th>
<th>Topic:</th>
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<th>Time:</th>
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<tbody>
<tr>
<td>February 26, 2011</td>
<td>Opportunity for students to get hands-on help with Assignment 4.</td>
<td>Assignment 4</td>
<td>More OOP, Templates, C++ libraries, exception handling</td>
<td>Lecture 8</td>
<td>2 hours</td>
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<td>March 5, 2011</td>
<td>Opportunity for students to get hands-on help with Assignment 5.</td>
<td>Assignment 5</td>
<td>Binomial tree and Black-Scholes option pricing primer. Introduction to Assignment 5.</td>
<td>Lecture 9</td>
<td>3 hours</td>
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<td>March 12, 2011</td>
<td>Opportunity for students to get hands-on help with Assignment 5.</td>
<td>Assignment 5</td>
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<td>GSI Session 4</td>
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<td>March 19, 2011</td>
<td>Assignment 5</td>
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