PIC 10B SECTION 1, JAN-MAR, 2017

INSTRUCTOR:	Michael Lindstrom (Mike)
OFFICE HOURS (MS 5622):	TBD
CONTACT INFO:	*e*: M I K E L [at] math [dot] ucla [dot] edu, *p*: 310-825-3049
LECTURE TIME/LOCATION:	M/W/F 9:00-9:50 in WGYOUNG 4216
SECTION WEBSITE:	www.math.ucla.edu/~mikel/teaching/pic10b
CCLE:	https://ccle.ucla.edu/ - for course notes and CCLE discussion forums
UPDATES:	Check your email and embedded twitter feed (@mikel_ucla_math)
OPTIONAL TEXTBOOK:	Big C++, Horstmann & Budd, 2nd Edition
PREREQUISITES:	PIC 10A
TAS:	Will Oakley Alexander Dobner
TUTORIALS:	T/R 9:00-9:50 in MS 6201 (Alex) and 10-10:50 in MS 6201 (Will)
CONTACT INFO:	*e*: W G O A K L E Y [at] ucla [dot] edu (Will) A D O B N E R [at] ucla [dot] edu (Alex)
TA OFFICE HOURS:	TBD

COURSE FORMAT AND BACKGROUND:

You should be proficient with introductory C++ content. This includes: creating variables; variables types (int, double, unsigned, long long, char, bool, size_t); basic arithmetic; if/else control flow; for, while, do, and range-for loops; the std::string class; calling accessor and mutator functions on class objects; input and output via std::cin and std::cout, and managing buffering; header files and cpp files; functions and argument passing, including const-correctness; declaring vs defining for functions; writing classes, constructors, and member functions, including the public and private keywords, and adhering to const-correctness; writing detailed comments for code documentation; the std::vector templated class; input/output file streams and string streams; and a basic familiarity with references, pointers, and iterators.

This is an intermediate programming course. The emphasis of the course will not only be practical coding, but also the conceptual knowledge of the algorithms and data structures studied. Much of your learning will take place in doing the assignments.

SUPPORT: You are highly encouraged to form study groups, share notes, collaborate, etc. But you must do your own work and typing. Code plagiarism will be taken very seriously.

The purpose of office hours is primarily to discuss/clarify course concepts and for homework-related hints on how to approach a problem. Office hours are not designed as a time for the homework to be done for you.

GRADING SCHEME:

Grading is performance based and not based on a curve. In particular, there is no limit to the number of A's that can be assigned! Regardless of your academic background, if you demonstrate mastery of the material, you can get an A!

Your course percentage is computed based on:

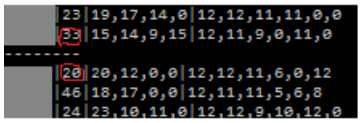
- Final Exam – 50%
- Homework** – 30%
- Class Participation - 10%
- max(Midterm, Final Exam) – 10%

** out of 6-8 homework assignments given all quarter, the lowest 2 will be dropped from your score: this applies to everyone.

Precise cutoffs for letter grades are to be determined after the final exam; however, the general meaning of an A level grade (A-, A, or A+) is: outstanding work; proficiency in all of the course material; solid commitment to the course has been exhibited. Perfection is not required, but students of this category demonstrate determination and strong study skills, even when faced with setbacks or hard exams/assignments. Such students tend to do every assignment, regardless of its apparent difficulty, whether or not they have already earned full homework marks, and fully participate in all aspects of the course. Students at the upper-end of this category have a deep understanding of even the most challenging course topics, appear to have an intrinsic motivation to learn the material, and often think about the material at a deeper level than the course requires. These students are comfortable enough with the course content and have a sufficient enough mastery of topics that they can apply their skills to new problems on exams. Many students here ask a lot of questions and make use of office hours, discussion sections, and other support. All students who earn A-, A, or A+ grades demonstrate proficiency in the material on exams, but an A or A+ is only given to students demonstrating mastery of the material.

In setting the final grades: you will be anonymized (names blocked out) and ranked based on your overall course percentage with various data such as overall course percentage, final exam grade, etc., visible. Grade brackets are chosen to group qualitatively similar collections of students and a drop in one or more grade brackets is chosen when there is justifiably a difference, based on the data, between two successive students such as, but not limited to, a large gap in overall percentages or a noticeable drop in exam performance, etc. Historical grade distributions are also considered in this process, if any grade brackets are otherwise ambiguous. See figure.

It is very likely that an overall percentage below 50% will be an F.



Overall course percentages are redacted (greyed regions). Row-by-row, the overall course percentages are arranged in decreasing order.

---'s indicate a grade bracket cutoff: note that any student above a cutoff had a higher overall course percentage (greyed) than the student below. Generally, the letter grade cutoffs are determined by (i) a large percentage gap in overall course percentage or final exam grade (first visible column), or (ii) historical grade data.

Class Participation: Using any internet-enabled device you have, you will submit responses to problems that will be asked during class via a simple web form at www.math.ucla.edu/~mikel/teaching/pic10b/php/InputPage.html

If having access to such a device is a problem, consider allowing a neighbour with internet access to submit your answer.

Scoring: you earn 4 points for any response and 1 extra point for correctness. Full marks are earned for earning 72% of all points, i.e., if you respond to every single question given but you are somehow wrong on all of them (unlikely!) then you will still earn 80/72 → 100% here. On the other hand, if you score less than 72% of all points, your mark here will be the fraction of 72% of points you earned so earning 36% of all points (fraction 0.5 of 72) would amount to 50% for a participation mark. This is really about participation and thinking in-class, and not a serious form of assessment!

By participating in the course evaluations at the end of the quarter, your overall course percentage will be rounded up to the next whole percentage before assigning your letter grade; this could be beneficial if you wind up near a grade bracket boundary.

Midterm: You will be given one 50-minute midterm in class on Monday, February 13.

Homework: There will be 6-8 homework assignments to submit on CCLE. You should only submit the raw .cpp or .h files, and they must be named appropriately. The assignments will be posted on the CCLE. Most of your learning will take place in doing the assignments!

Visual Studio 2015 is available for download here as Visual Studio 2015 Community (https://www.visualstudio.com/en-us/products/visual-studio-community-vs.aspx) and provided in the PIC Lab.

Visual Studio 2015 is the course standard for homework submissions and all course work: this course does not support Mac's Xcode or other compilation environments. Homeworks will be graded according to Visual Studio 2015 alone. If your code does not compile or operate correctly on Visual Studio 2015, marks will be deducted as though it does not compile or operate correctly, regardless of whether it works on other software!

Homeworks will be scored out of 10 points as below:
Code readability (3 points): code documentation/commenting, choice of variable names, and layout

- 0 ← unreadable and confusing
- 1 ← either difficult to read or confusing, with the exclusive or implied
- 2 ← reasonable
- 3 ← exceptional

Good coding practice (3 points): not only should the code compile and run, but as various "good practices" are introduced in the course, you should adhere to them such as using size_t for indexing containers, adhering to const correctness, including return 0 in main(), choosing unsigned variable types when appropriate, etc.

- 0 ← more than two errors
- 1 ← two errors

- 2 ← one error
- 3 ← no errors

Output (4 points): the code should perfectly match the description given in the homework.
- 0 ← does not compile or the output is far from the desired output
- 2 ← the output is roughly half-correct
- 3 ← the output is mostly correct, but not a complete match to the desired output
- 4 ← the output is a perfect match to the desired output.

A score of 1 is not possible in the "Output" category.

Final Examination: There will be a final exam covering all the material from the course taking place on March 23, 11:30 – 14:30.

FORMAL POLICIES:

Missing Work: If the final exam is missed for a valid reason, you will be given an oral final exam instead of a deferred standing. University policy states that you cannot pass the course unless you take the final exam.

Valid reasons include one of the following: (a) prior notice of a valid, documented absence (e.g. out-of-town varsity athletic commitment), (b) notification to the instructor within one week due to a medical condition or (c) an emergency. All reasons require written documentation, for example a doctor's or counselor's note stating the student was medically/psychologically unfit to be in school, a copy of a death certificate, or a letter from a coach. A score of zero will otherwise be assigned. Missing the midterm for a valid reason will transfer its weight to the final exam.

Because roughly one-third of homework assignments will be dropped and only 72% of participation points are required to earn 100%, no homework grades or participation scores will be excused, no matter what, even for a valid, documented absence. The purpose of dropping the assignments and participation points is not leniency; the purpose is to account for unforeseen circumstances such as sickness, needing to travel, medical appointments, and the likes.

Collaboration Policy: You must identify all collaborators on your assignments and you must do your own work!

At the top of every assignment, you should declare the following:
I, [YOUR NAME], declare that this work is my own. I did this work honestly and can fully stand behind everything that I have written.

I did not copy code from anyone, student or otherwise.

And, if a collaboration took place, also add:

I collaborated with [NAMES OF COLLABORATORS] and I affirm that we all contributed equally in the code.

Under no circumstances does the above declaration entitle you to copy the work of other students! You should also not allow your work to be copied by others as that will only hurt them on exams.

Students with Disabilities: If you have a documented disability, please contact the Office of Student Disabilities and have them consult with your instructor to ensure you are accommodated. It is your responsibility to do this in a timely manner. Special exam accommodations will not be provided by the instructor or TAs.

Regrading: The midterm will be returned at the discussion section. You will then have until the end of that discussion section to request a regrading. To request a regrading:

- **(i)** you must write a note on a separate piece of paper from your exam, outlining why you are requesting a regrading;
- **(ii)** you may not write anything extra on your exam;
- **(iii)** and you must submit your regrading request to your TA by the end of the discussion section in which the test is returned. Once you leave the discussion room with your exam, the grade is final.

Work will not be regraded if items (i)-(iii) are not all satisfied. If you miss the discussion section, you must collect your test from the instructor's office hours within 5 business days of the original return date and then the same policies apply: once you leave the office with your test, the grade is final.

With a regrading, your work in its entirety will be regraded by the instructor, not just the single question(s) you are asking about: your mark could stay the same, go up, or (in some cases) go down.

If you catch an addition error, you still must return your work according to the policies listed above, but none of your test will be regraded – the total will simply be checked and corrected if necessary.

To request a homework regrading, you must submit a handwritten request to your TA in person within 5 business days of the homework grade release date (or by the date of the final exam in the case of the final assignment). Your TA will be in-charge of the homework regrades and your mark could stay the same, go up, or (in some cases) go down.

All marks are final after a regrade.

Cheating: If a student is suspected of cheating (on a test, assignment, etc.), the department will be notified immediately and severe academic disciplinary action may follow. This could include expulsion from the university!

Examples of cheating include: starting a test before the designated time, continuing to write when time is up, intentionally looking at another student's exam and copying, intentionally exposing your own exam to a student, copying another student's homework verbatim (even if you change the variable names, etc., that's plagiaising!), taking work from websites and presenting it as your own, adjusting your answers to an exam after it has been graded and requesting a regrade, or not attending class and getting a classmate to respond to the participation problems on your behalf.

Emails and Course Forums: Homework-specific or conceptual questions should be posted on the online discussions at CCLE instead of an individual email to the instructor or TA. Generally emails will not receive a response.

It is best to speak in person about personal course concerns and to post on CCLE for other questions.

Emails about anything that is answered in the syllabus, in class, or in course announcements will not receive a reply. Also note that some email clients seem to block email replies given from math.ucla.edu: yahoo is particularly bad for this.

Instructor Discretion: The final course marks may be shifted and scaled, and the instructor reserves the right to revise any mark. This syllabus is also subject to change.

GENERAL:

Discussion sections: The discussions are extremely important! The lectures serve to introduce topics, ideas, and build motivation; in the discussions, you will get vital practice and review.

Lateness and Talking: If you do arrive late, please enter with your notebook/laptop, pen, etc. ready and be as quiet as possible to avoid interrupting others.

Unless there is an in-class problem you have been assigned to work on (in which case you are encouraged to talk!), you should not be talking during the lecture. It is disruptive and rude to both your instructor and your fellow classmates; talking will not be tolerated.

Electronic Devices and Distractions: Please turn off the noise on any cell phones, etc. If you may be tempted to use your laptop for non-class activities, be considerate of your classmates and sit towards the back to avoid distracting others.

Participation: You are encouraged to get involved in the material, to answer questions in class and on the forums, and to ask questions when you're unclear of what's going on. Don't be afraid to ask questions! To better engage with classroom discussion, please try to sit next to at least one classmate to discuss in-class problems.

Succeeding: There is no rule that anyone has to fail! There is absolutely no reason you cannot excel in this course if you work for it!

SUCCESS TIPS:

- Attend class. Hearing information live, doing problems, and being able to ask your own questions is important and correlates strongly with exam performance.
- Attend your discussion sections. Lecture time is very limited: there is reason why 2 hours per week are scheduled for this course outside of lectures.
- Do not get behind: once there is a topic you are weak with, it could very well prevent your understanding subsequent topics. The material does build.
- Beware the "familiarity fallacy": just because you've seen a topic before, doesn't mean that you have mastered it.
- Make use of office hours and CCLE discussions.
- Don't be afraid to speak with your instructor or TA: you are not just a number!