PIC 10B SECTION 1, JAN - MAR, 2019

INSTRUCTOR:	Michael Lindstrom (Mike)
OFFICE HOURS:	Mon (shared with PIC 40A) 10:30-11:30 in PIC Lab Wed (PIC 10B priority) 10:30-11:30 in PIC Lab Fri (PIC 40A priority) 10:30-11:30 in MS 6221
CONTACT INFO:	*e*: M I K E L [at] math [dot] ucla [dot] edu, *p*: 310-825-3049 Office: MS 5622
LECTURE TIME/LOCATION:	M/W/F 9:00-9:50 in MS 5200
SECTION WEBSITE: **CCLE:**	www.math.ucla.edu/~mikel/teaching/pic10b https://ccle.ucla.edu/ - for course notes and CCLE discussion forums
UPDATES:	Check your email and embedded twitter feed (@mikel_ucla_math)
OPTIONAL RESOURCES:	- *C++ Primer*, Lippman, Lajoie, Moo, 5th Edition - The C++ Standard: http://www.open-std.org/jtc1/sc22/wg21/docs/papers/2017/n4659.pdf
PREREQUISITES:	PIC 10A (or CS 31)
TAS:	Bumsu Kim Hui Jin
TUTORIALS:	T/R 9:00-9:50 in MS 6201 (Hui) T/R 10-10:50 in MS 6201 (Bumsu)
CONTACT INFO:	*e*: H U I J I N [at] g [dot] ucla [dot] edu (Hui) B U M S U [at] ucla [dot] edu (Bumsu)
TA OFFICE HOURS:	Tues 11:11:50, Thurs 11-11:50 in PIC Lab (Bumsu) Tues 15-16:20, Fri 16-17:20 in PIC Lab (Hui)

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. Notes from PIC 10A are posted on CCLE and you may wish to refer to them to refresh your memory or pick up on some items you may be unaware of.

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.

NOTES/LECTURE/DISCUSSION: Unless otherwise specified, you are responsible for everything covered in the notes in addition to any material that comes up in lectures or discussion that might not be in the notes.

The lectures will generally follow the notes but may include more demonstrations and include less emphasis on more trivial definitions, syntax, etc. The discussions are there to reinforce concepts, go more in-depth into examples, and provide homework guidance.

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 or debugged 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 – 55%
- Homework** – 25%
- Class Participation - 6%
- Discussion Participation – 4 %
- max(Midterm, Final Exam) – 10%

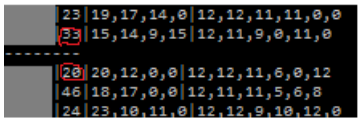
** out of 9 homework assignments given all quarter, the lowest 2 will be dropped from your score: this applies to everyone.

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/participation

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 after the grade boundaries have been set but before assigning your letter grade; this could be beneficial if you wind up near a grade bracket boundary.

Discussion Participation: Most discussion sections will include exercise time where your TA will give you a challenging conceptual or coding problem and you will work in pairs to write a solution on a sheet of paper. You will submit this work to the TA before the group discusses the topic. Each question is worth 1 point and full marks are earned by writing something intelligible showing that thought was put into the

question, even if the answer submitted is incorrect. Full marks are earned for earning 80% of all points, i.e., if you respond to 80% or more of the questions, you will earn 100%. But only responding to 60% of questions, you will earn 75%, etc.

Midterm: You will be given one 50-minute midterm in class on Friday, February 15.

Homework: There will be 9 homework assignments to submit on CCLE. You should only submit the raw .cpp or .h files, and they must be named appropriately. Late submissions will not be accepted. The assignments will be posted on CCLE. The assignments are important for your learning!

Visual Studio 2017 is available for download here as Visual Studio 2017 Community (https://www.visualstudio.com/downloads/) and provided in the PIC Lab.

Visual Studio 2017 is the course standard for homework submissions and all course work: this course does not directly support Mac's Xcode or other compilation environments. Homeworks will be graded according to Visual Studio 2017 alone. If your code does not compile or operate correctly on Visual Studio 2017, marks will be deducted as though it does not compile or operate correctly, regardless of whether it works on other software or compilers!

Homeworks will be scored out of 20 points as below (refer to the **HW_Codes** document for a list of required coding practices and techniques that are required for homework):

Output (8 points): the code output should perfectly match the description given in the homework and follow all specifications.

- 0 ← does not compile *or* the output is far from the desired output *or* the code violates homework specifications
- 4 ← some progress has been made but the output is far from being correct (e.g. the display format is correct but the output is mostly wrong, the initial output is good but the program soon crashes, etc.)
- 6 ← the output is mostly correct, not a complete match to the desired output (e.g. the program runs but logical errors result in the odd incorrect readout, etc.), no crashes
- 8 ← the output is a perfect match to the desired output.

Other score values are not possible.

Code readability (6 points): code documentation/commenting, choice of variable names, and layout

Let R = # readability guidelines that were not met
Score = max(min(Output, 6) – R, 0)

Good coding practice (6 points): robustness, efficiency, etc.

Let P = # practice guidelines that were not met
Score = max(min(Output, 6) – P, 0)

Final Examination: There will be a final exam covering all the material from the course taking place on Friday, March 22, 8:00 – 11:00. Location TBD.

FORMAL POLICIES:

Missing Work: If the final exam is missed for a valid reason and your overall course percentage computed by excluding the final exam is above 75%, you will be given an oral final exam to make up for the missed exam. 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 any reason will automatically transfer its weight to the final exam; there will be no makeup midterms.

Because two homework assignments will be dropped and only 72% of class participation points or 80% of discussion participation points are required to earn 100%, no homework grades or participation scores will be excused, even for a valid, documented absence, even for students who register late. 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, joining late, 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 Center for Accessible Education 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: getting someone else to do one's homework/projects, accessing prohibited materials on an exam, modifying a homework after its submission deadline, 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!