**COMP 1800, Problem Solving with Computers – Fall 2016**

**Mr. Kriangsiri (“Top”) Malasri**

**Contact Information:**

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The best way to get in touch with me is through email – I will almost always respond within 24 hours.

**Office Hours:**No formal hours, but I’m usually around on weekday afternoons. Feel free to email or call to set up an appointment!

**Lecture Meeting Times/Locations:**

TR 5:30-6:55 pm FIT 226

**Catalog Description:**

**COMP 1800 Problem Solving with Computers (3)** Fundamental aspects of problem solving within the context of computer programming; techniques for deriving problem solutions and use of basic programming concepts such as loops, conditionals, and variables; basics of high-level programming language. NOTE: this course may not be used as a COMP elective to fulfill the requirements of the major or minor in Computer Science.

**Why This Course?**

This course will teach you the basics of computational thinking: how to solve problems by developing step-by-step solutions that a computer can understand, and then implementing these solutions by writing computer programs. We will be using the **Python** programming language to demonstrate these concepts, but the knowledge should also be applicable to many other programming languages that you may encounter later.

**Course Website:**

Class materials (lecture notes, assignments, etc.) and grades will be posted on the eCourseware system at <https://elearn.memphis.edu> throughout the semester. News and reminders will also be posted here.

**Required Text:**

There is no required text for COMP 1800 – I’ll provide lecture slides that cover the topics we discuss in class. My slides will be loosely based on Allen B. Downey’s text *Think Python: How to Think like a Computer Scientist*, which you can download free of charge from <http://www.greenteapress.com/thinkpython2/index.html>. However, please note that we will NOT be covering all of this text, nor will we be following its order exactly.

**Evaluation:**

Classwork and Participation 300 pts.

Homework 200 pts. (5 @ 40 pts. each)

Quizzes 100 pts. (4 @ 25 pts. each)

Midterm Exam 125 pts.

Final Exam (Comprehensive) 300 pts.

Final grade: add up your point total and divide by 1000. Note that the highest possible percentage grade is 102.5% since the points add up to 1025.

**Grading Scale:** Letter grades will be determined as follows:

**A+**: 96-100%; **A**: 90-95%  
 **B+**: 87-89%; **B**: 81-86%; **B-**: 79-80%  
 **C+**: 77-78%; **C**: 71-76%; **C-**: 69-70%  
 **D+**: 67-68%; **D**: 60-66%  
 **F**: Below 60%

**Attendance:**

It’s crucial that you attend class regularly, especially if this is your first experience with computer programming. The course will keep building on the material that we’ve covered, and it will be difficult to catch up if you miss even one or two classes. If you do miss class, it is your responsibility to make sure that you are keeping up with the material and turning in assignments on time. Almost every class session will include short in-class assignments, which together account for **30%** of your final grade!

**Email:**

Please check your University of Memphis email account at least once a day, as that is my primary means of communicating with you outside of class.

**eCourseware Dropbox Policy:**

All code submissions should be made through the dropbox on eCourseware unless specifically indicated otherwise. The dropbox will automatically cut off submissions precisely at the deadline. It is your responsibility to submit your work with time to spare, and to double check that your submission made it into the dropbox. “I accidentally submitted the wrong file,” “The dropbox was having technical issues at the last minute,” “I submitted the file but somehow it never made it to the dropbox,” “The dropbox wouldn’t accept my submission because it was 3 seconds late,” and similar statements are NOT valid excuses.

**Late/Makeup Policy:**

All assignments are expected to be completed and turned in on schedule. Due dates will be clearly indicated for each assignment. Late assignments are NOT accepted except in extreme circumstances. Likewise, makeup quizzes and exams will be given only under extreme circumstances. If you feel that your circumstances warrant a late work submission or a makeup quiz/exam, please get in touch with me as soon as possible. Be prepared to show some kind of documented proof of your situation.

**Plagiarism/Cheating Policy:**  
An essential part of learning how to program is getting plenty of practice with it yourself. As such, all assignments for this class (unless specifically indicated otherwise) are expected to be individual efforts. If I determine that you have copied something directly from a book, the Internet, or some other source, you will receive a failing grade on the assignment and (at my discretion) a failing grade in the course. If I determine that you have copied another student’s assignment, this will happen to both you and the person from whom you copied. The incident may also be forwarded to the Office of Student Conduct for further disciplinary action. Please don’t put me in this situation.

**Getting Help:**  
Although I expect your work for this class to be done individually, I encourage you to seek help if you get stuck:

* Come talk to me! I’m very willing to sit down and try to provide hints without giving away the solution.
* The Computer Science Learning Center (Dunn Hall 208) will be open throughout the semester. Hours will be posted on the door, as well as online at <http://www.memphis.edu/cs/current_students/cslc.php>. The lab will be staffed by junior- and senior-level computer science students whom you can ask for help.

**Student Disabilities:**

If you have a disability that may require assistance or accommodations, or if you have any questions related to any accommodation for testing, note taking, reading, etc., please speak with me as soon as possible. You must contact Disability Resources for Students (<http://www.memphis.edu/drs>) to officially request such accommodations / services.

**Tentative Course Schedule:**

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| --- | --- | --- | --- | --- |
| **Date** | **Lecture Material** | **Quizzes** | **Classwork** | **Homework** |
| 8/23  8/25 | Course introduction  Computer hardware |  | Dropbox agreement |  |
| 8/30  9/01 | Number systems and binary numbers |  | Base conversions | HW1: Binary numbers (posted 9/01, due 9/08) |
| 9/06  9/08 | Boolean logic and binary arithmetic |  | Boolean operators  Truth tables |  |
| 9/13  9/15 | Algorithms  Intro to Python / interactive vs. script mode | **Q1** (9/13) |  |  |
| 9/20  9/22 | **int** and **float** data types and expressions  **str** data type / order of operations |  | Data types / expressions  Order of operations | HW2: Expressions and variables  (posted 9/22, due 9/29) |
| 9/27  9/29 | Variables and comments  Using **raw\_input()** to read data |  | Variables  Program input |  |
| 10/04  10/06 | Introduce conditionals  Review for midterm | **Q2** (10/04) |  |  |
| 10/11  10/13 | *NO CLASS – Fall Break*  **MIDTERM EXAM** |  |  |  |
| 10/18  10/20 | Conditionals (**if** and **else**)  Conditionals (**elif**) |  | Basic conditionals  Multibranch conditionals | HW3: Conditionals (posted 10/18, due 10/25) |
| 10/25  10/27 | Introduce **while** loops  Loops and counters | **Q3** (10/27) | Basic loops  Loops and patterns |  |
| 11/01  11/03 | Repeating programs and error checking with loops |  | Loop applications | HW4: Loops (posted 11/01, due 11/10) |
| 11/08  11/10 | Newton’s method, prime numbers, and other loop applications |  | Loop applications |  |
| 11/15  11/17 | Built-in functions and Python’s **math** module  Writing custom functions | **Q4** (11/15) | Built-in functions  Custom functions | HW5: Functions (posted 11/17, due 11/29) |
| 11/22  11/24 | Writing custom functions, cont’d.  *NO CLASS – Thanksgiving* |  | Custom functions |  |
| 11/29  12/01 | Review for final  *NO CLASS – Study Day* |  |  |  |

**FINAL EXAM – Thursday, Dec. 8, 5:30-7:30 pm**(same classroom as lecture)

**Tentative Quiz and Exam Topics:**

* Quiz 1: Converting numbers between different bases, Boolean operators
* Quiz 2: Expressions, data types, variables
* Midterm Exam: All material up to but NOT including conditionals
* Quiz 3: Conditionals
* Quiz 4: Loops
* Final Exam: Everything!